APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY
D/B/A DOMINION VIRGINIA POWER

CASE NO. PUE-2006-00091

For a certificate of public convenience
and necessity for facilities in Stafford County:
Garrisonville 230 kV Transmission Line and
230 kV – 34.5 kV Garrisonville Switching Substation

REPORT OF MICHAEL D. THOMAS, HEARING EXAMINER

December 12, 2007

On August 30, 2006, Virginia Electric and Power Company, d/b/a Dominion Virginia Power ("Dominion" or "Company"), filed an Application for Approval and Certification of Electric Facilities: Garrisonville 230 kV Transmission Line and 230 kV-34.5 kV Garrisonville Switching Substation ("Application"). Dominion proposes to construct and operate a 230 kV transmission line from a point on its existing Possum Point – Fredericksburg 230 kV Line. The origination point on the Possum Point – Fredericksburg Line would be approximately one-half mile north of Dominion's existing Stafford Substation. The line would extend for approximately five miles to a new Garrisonville Switching Substation. The substation would be located in the vicinity of Shelton Shop Road and Mountain View Road. The transmission line and the proposed Garrisonville Switching Substation would be constructed entirely within a right-of-way previously acquired by the Company.

By Order for Notice and Hearing entered on September 25, 2006, the State Corporation Commission ("Commission") docketed the Application and directed the Company to give notice of the proceeding. The Commission assigned the Application to a Hearing Examiner to conduct all further proceedings on behalf of the Commission and scheduled a public hearing on the Application for January 25, 2007, beginning at 1:30 p.m. and reconvening at 7:00 p.m. in the Board of Supervisors Chambers, Stafford County Administration Center, 1300 Courthouse Road, Stafford, Virginia, to receive the testimony of public witnesses as provided by 5 VAC 5-20-80 C of the Commission's Rules of Practice and Procedure. In addition, the Commission directed the Division of Energy Regulation (the "Staff") to investigate the Application and to file testimony and exhibits on the results of its investigation.

By Hearing Examiner's Ruling entered on October 4, 2006, the location of the 7:00 p.m., January 25, 2007, hearing was changed to the Colonial Forge High School Auditorium to accommodate the large crowd expected to attend the hearing.

Local public hearings were held in Stafford County on January 25, 2007, and continued to February 6, 2007, to accommodate all the public witnesses desiring to testify. Dominion advised the parties at the February 6, 2007, public hearing that it would amend its Application to submit for

the Commission's consideration, an alternative under which the transmission line would be constructed underground in the same right-of-way in which its proposed overhead transmission line would be located.

On February 27, 2007, Dominion filed a Motion for Leave to File Underground Alternative Supplement, Request DEQ Coordinated Review, Revise Procedural Schedule, and Address Notice Issues ("Motion"). The Company attached to its Motion an Underground Alternative Supplement which presented the underground alternative as part of the Company's direct case to be considered by the Commission, the parties, and the Staff along with its other proposals.

The Company's underground alternative differs from its overhead alternative in several key respects:

1. The easements that created the Company's existing right-of-way did not convey to the Company the right to construct and operate underground utility facilities. As a result, the Company would be required to acquire those underground easement rights to construct the underground alternative.
2. The underground alternative would require the construction of a new overhead transition and switching station in existing overhead right-of-way in Aquia Harbour ("Aquia Harbour Terminal Station") at the point where the new underground line would tap overhead Line #252, and the purchase of the land needed to construct the new station.
3. Modifications would be required to the design and construction of the Garrisonville Switching Substation that would expand its footprint, necessitating the purchase of additional land.
4. The underground alternative requires continuous open trenching for the entire five-mile length of the line, excavation of manholes at approximately 2,000-foot intervals along the route, directional boring under I-95, Route 1, and potentially under wetlands and streams along the route. Excavation for the overhead alternative would be limited to a small-diameter drilled hole under the feet of each structure, approximately every 900 feet. The environmental impacts of the two alternatives are significantly different.

The differences between the overhead and underground alternatives convinced the Company that:

1. A coordinated environmental review of the underground alternative should be performed by the Department of Environmental Quality ("DEQ").
2. The proposed construction of the new Aquia Harbour Terminal Station, the expansion of the Garrisonville Switching Substation, the need to purchase land for the construction of these facilities, and to acquire additional easement rights to construct and operate underground facilities in the existing overhead right-of-way may require the exercise of eminent domain, and may require the same notice and service under § 56-46.1 of the Code of Virginia as did the Application. The Company moved the Commission to

direct that such notice and service be conducted to place the underground alternative on the same footing as the overhead proposal.

To complete the foregoing requirements and to allow the parties and the Staff adequate time to review the underground alternative prior to filing their direct testimony and exhibits, Dominion requested a modification to the procedural schedule.

By Hearing Examiner's Ruling entered on March 22, 2007, Dominion's request for leave to file its Underground Alternative Supplement was granted, a revised procedural schedule was adopted, and the Company was directed to provide notice of its proposed underground transmission line alternative to the public.

The evidentiary hearing was convened as scheduled on July 11, 2007, and was completed on July 13, 2007. Stephen H. Watts, II, Esquire; Kristian Mark Dahl, Esquire; and Vishwa B. Link, Esquire, appeared on behalf of Dominion. William H. Chambliss, Esquire; and Wayne N. Smith, Esquire, appeared on behalf of the Staff. Michael J. Quinan, Esquire; Edward L. Petrini, Esquire; and Joseph L. Howard, Jr., Esquire, appeared on behalf Stafford County. John W. Montgomery, Esquire; and Holly Hazard, Esquire, appeared on behalf of Towering Concerns, Inc. ("Towering Concerns"). Brian R. Greene, Esquire, appeared on behalf of Brookstone Homes at Berkshire, Inc. ("Brookstone Homes"). Post-hearing briefs were filed by Dominion, the Staff, Stafford County, and Towering Concerns, Inc. A copy of the transcript is included with this Report.

Summary of the Record

I. *Written Comments.*

Written comments were submitted by approximately 808 individuals from October 24, 2006, through May 29, 2007. Of that total, approximately 799 were opposed to Dominion's proposed overhead alternative, and 9 were in favor of the overhead alternative. The commentors opposed to Dominion's overhead alternative addressed the following:

(1) the need for the transmission line and who would benefit from the line;
(2) undergrounding the transmission line;
(3) undergrounding all electric transmission lines within 500 feet of a residential neighborhood or school;
(4) undergrounding the line in a manner similar to the electric distribution lines throughout various Stafford County neighborhoods;
(5) doing the "right" thing for the community and its residents by undergrounding the line;
(6) underground transmission lines are located in other states and localities throughout the United States have underground transmission lines, Stafford County should be no different;
(7) cost sharing to underground the transmission line;
(8) Dominion's lack of notice to all affected landowners and inadequate information provided at public meetings;

(9) right-of-way clearing and maintenance;
(10) impacts to wetlands and wetlands mitigation;
(11) inadequate or no disclosure of the Dominion easement when homeowners purchased homes in subdivisions bordering the easement;
(12) Dominion acquired the easement in the 1960's for another project that it has since abandoned and considerable residential growth has occurred along the proposed route;
(13) poor planning by state and local authorities to address residential growth along electric transmission corridors;
(14) impact of the transmission line on property values;
(15) impact of the transmission line on schools, churches, and recreational areas;
(16) unknown health effects associated with Electro-Magnetic Fields ("EMF") and electric transmission lines;
(17) electrical safety concerns with the electric transmission facilities;
(18) the impact of severe weather and reliability associated with aboveground versus underground transmission lines;
(19) the visual and scenic impacts associated with 130-foot steel lattice towers placed 900 feet apart for 5 miles;
(20) using monopole structures if an overhead alternative is selected;
(21) substation upgrades to address the same reliability issues as the proposed transmission line;
(22) routing the transmission line through a more rural part of Stafford County; and
(23) encouraging conservation and alternative solar energy to eliminate the need for the line.

The vast majority of those opposed to Dominion's overhead alternative believe the negative impacts of the line could be mitigated by undergrounding the line. They understand the need to provide reliable electric power to meet growth occurring in the area, but for the reasons stated, they prefer that power be supplied via an underground transmission line.

The 9 commentors in favor of Dominion's overhead alternative addressed the following: three were opposed to paying increased electric rates to pay for undergrounding; two believe the Company's overhead option is less costly and more reliable; two support infrastructure expansion to attract business growth and provide reliable electric service; and two who were not impacted by the proposed transmission line advised the Commission against listening to NIMBY (Not In My Back Yard) complaints.

II. *Public Witnesses.*

Local hearings were convened on January 25, 2007, and February 6, 2007, to receive the testimony of public witnesses. In addition, public witnesses were permitted to testify at the commencement of the evidentiary hearing on July 11, 2007. A total of 97 public witnesses testified and their testimony is summarized below.

Susan Bhuller, a resident of Stafford County and a teacher at H.H. Poole Middle School, expressed concern about the hazards of EMF on children at school and church. She also testified about the damage to the aesthetic value of the community and the potential decrease in property values. Ms. Bhuller recommends the transmission lines be buried underground. Tr. at 9.

Dennis Drago, a resident of Stafford County and president of the Austin Ridge Homeowners Association, opposes the proposed line and recommends that Dominion be ordered to submit another proposal that is more sensitive to the impact of transmission lines on the community. Tr. at 19.

Vincent Ellis**,** a resident of Stafford County, expressed disappointment that despite exercising due diligence before purchasing his property and being notified by Dominion that it would never build on the easement, Dominion is now proposing to build transmission lines on the easement. Mr. Ellis stated that the easement provides only the right to transmit power, not distribute power. He also states that Dominion's application requires distribution circuits within the right-of-way, which is not permitted by the easement. He further argued there is no need for the increased capacity. In his personal experience, power has been lost for a total of only 13 days, including nine resulting from Hurricane Isabel. Mr. Ellis is concerned that the transmission lines will decrease his property value and damage the aesthetic value of the community. He would like the transmission lines to be buried underground. Tr. at 21.

Ken Hutcherson**,** a resident of Stafford County, considers aboveground transmission lines unsightly, and he also is concerned about possible health effects resulting from the lines. Mr. Hutcherson suggests that Dominion consider alternatives such as: adding another transformer to an existing substation, re-routing distribution lines, or even utilizing solar power. Tr. at 37.

Marie Gozzi, a resident of Stafford County, voiced her concern that Dominion has not considered the changes in the area since it obtained the easements in the 1960s. She expressed a desire for the Company to explore innovative options before resorting to the "1950s technology" known as steel lattice towers. Tr. at 43.

Richard J. Gillis, a resident of Stafford County and a managing member of Austin Park Development, expressed concern about the unsightliness of the transmission line and its effect on the $65 million dollar investment of his company in a recently approved town center project. He recommends undergrounding. Tr. at 52.

Norman Jean Ogden, a resident of Stafford County, criticized Dominion's lack of foresight. The Company obtained the right-of-way in the 1960's. Why did it not foresee the need for additional power until 2006? Ms. Ogden favored undergrounding. Tr. at 55.

Michael Strobl, a resident of Stafford County, criticized Dominion's refusal to provide information to the Joint Legislative Audit and Review Commission ("JLARC"). He is also concerned that Dominion can install the transmission lines without third-party confirmation that the lines are in fact necessary. Furthermore, Mr. Strobl is concerned about the impact the transmission lines will have on the health of children; he stated the relationship between power lines and leukemia is statistically significant. Tr. at 60.

Lakhwinder Bhuller, a resident of Stafford County, is an electrical engineer. He expressed concern about the potential decrease in property value and questioned Dominion's lack of planning for population growth. He also voiced his concern about the safety of fatigued transmission lines, as well as the effects of EMF on the health of residents. Mr. Bhuller states there are cost-effective ways of detecting outages for underground lines and he therefore would like to have the transmission lines buried underground. Tr. at 71.

Fred Woodaman, a resident of Stafford County, expressed a desire for the Commission to consider all available alternatives that would minimize the impact upon the community. He supports burying the transmission lines underground, rerouting the transmission lines, or even using a monopole structure. Tr. at 85.

Gary Sharp, a Rodney Thompson Middle School student, hopes that Dominion will forgo the least expensive, most profitable alternative and bury the transmission lines underground. Tr. at 92.

Austin Grebe, also a Rodney Thompson Middle School student, is concerned about a potential decrease in property values, the health effects of EMF, and losing athletic playing fields due to the construction of aboveground transmission lines. Tr. at 94.

Carla Neigh, a resident of Stafford County, expressed her concern about the health of children after being exposed to EMF from transmission lines. She also stated the transmission lines will pose a safety issue for children attempting to climb the towers. Furthermore, she is concerned about losing athletic playing fields located on the easement. Tr. at 98.

Lalena Janke, another Rodney Thompson Middle School student, feared that her younger brothers will use the steel lattice towers as a playground. Tr. at 107.

Cathy McFall, a resident of Stafford County, questioned the possible effects of EMF on the health of the community, especially children attending schools in close proximity to the transmission lines. She is also concerned about the potential decrease in property values, and she favors undergrounding. Tr. at 110.

Kim Robinson, a resident of Stafford County, understands that energy is needed, but is concerned about the EMF health effects of an aboveground transmission line in an area that has grown exponentially in size since Dominion acquired the easement in the 1960s. She cannot understand why the Company insists on using 1950s technology while the rest of the world has turned to burying transmission lines. Ms. Robinson is not in favor of using monopoles, and would like to see the transmission lines buried underground; she supports legislation enabling Stafford County to pay the difference in cost. Tr. at 115.

Jay Leathers, a resident of Stafford County, expressed concern about the health effects of the EMF from an aboveground transmission line and questions the line's proximity to playgrounds. He supports legislation that would allow Stafford County to pay for the additional costs, but only if the amount Stafford pays is equivalent to the percentage of energy used by the county from these transmission lines. Tr. at 127.

Al Conner, a resident of Stafford County, testified that Dominion misled residents and county officials as to the Company's intended future use of the easement. This is evidenced by the thousands of homes and five schools built near Dominion's easement. He is also concerned about the health effects of EMF from transmission lines, and the potential decrease in property values. Mr. Conner believes it is the county's burden to pay for burying the transmission lines, but is concerned that those not paying will also benefit from the transmission lines. Tr. at 131.

John LeDoux, a resident of Stafford County, testified that transmission lines will potentially decrease the value of his property. He is also concerned that Stafford County will lose many school playgrounds and parks if the transmission lines are constructed aboveground. Mr. LeDoux would like the transmission lines buried, at least near schools, parks, and playgrounds. Tr. at 142.

Ivy Walsh**,** a resident of Stafford County, is concerned about the potential decrease in her property value should the transmission lines be constructed aboveground. Ms. Walsh believes that the transmission lines should be buried underground. Tr. at 144.

Judy K. Giancola**,** a resident of Stafford County, is primarily concerned about the health effects caused by EMF from the transmission lines. She testified she was once near high-tension wires and heard the awful buzzing noise. Tr. at 148.

John Pennington, a resident of Stafford County, expressed concern about the potential decrease in property value and the health effects of EMF from the transmission lines. Mr. Pennington would like to see the transmission lines buried. Tr. at 151.

Kim Altemose, a resident of Stafford County and a small business owner, is worried that the construction of aboveground transmission lines will ruin her kitchen remodeling business when people stop moving into the county. She is also very upset that Dominion sat back and said nothing while developments were being constructed around the easement. Ms. Altemose does not even favor burying the transmission lines; she would like them moved elsewhere. Tr. at 154.

Elaine Gooding, a resident of Stafford County, is concerned about the health effects associated with EMF and a decrease in property values. Ms. Gooding would like the transmission lines buried or Dominion required to buy her home. Tr. at 158.

Sue Stonehill, a resident of Stafford County, testified that aboveground transmission lines would destroy the aesthetic value of the community. She is also concerned about the effect of EMF on the health of children. Ms. Stonehill would like to see the transmission lines buried and she is willing to pay an additional fee each month to have the lines buried. Tr. at 161.

Stefanie Lombardo, a resident of Stafford County, is concerned about the possibility of decreasing property values as well as the effects of EMF on the community's health. Ms. Lombardo is also concerned about the personal safety of her autistic child. The radio chip installed in her son's bracelet allows police to locate him should he become lost. The EMF from the proposed aboveground transmission lines may cause the bracelet to work improperly. Tr. at 166.

Dave Wernli, a resident of Stafford County, expressed concern about the EMF's effect on children's health. He also believes aboveground transmission lines will have a negative effect on the aesthetic value of the community. Mr. Wernli is willing to pay extra each month for the transmission lines to be buried. Tr. at 179.

Carolyn C. White, a resident of Stafford County, is worried about the health effects of EMF from the transmission lines. She is also concerned that the transmission lines will decrease the value of her property. Furthermore, Ms. White is concerned that the inevitable uprooting of trees will damage her property. Tr. at 184.

Kevin Arata, a resident of Stafford County, expressed concern about the potential decrease in property values. Mr. Arata also believes that Dominion's proposal to construct transmission lines aboveground is based on the community's status. He stated that in the more well-to-do areas of Loudoun County, Dominion is willing to explore other alternatives. Tr. at 193.

Robert C. Gibbons, a resident of Stafford County, would like the transmission lines buried underground. Tr. at 214.

Paul Milde, a resident of Stafford County, would like the transmission lines buried underground. Tr. at 216.

Carlos Del Toro, a resident of Stafford County, is concerned about the effect of EMF on the health of the community's children. He also expressed concern regarding the potential decrease in property values. Mr. Del Toro would like Dominion to bury the transmission lines at its own expense. Tr. at 219.

Nicole Burkhardt, a student at Rodney Thompson Middle School, is concerned that the community will lose athletic fields if the transmission lines are built aboveground. She is also concerned about the effect of EMF on the community's health and the potential decrease in property values. Ms. Burkhardt would like the transmission lines buried. Tr. at 227.

James Dunham, a resident of Stafford County, is concerned about the effect of EMF on the county's residents. He also expressed concern for the safety of helicopter pilots from the Quantico Marine Base flying over 13-story towers. Mr. Dunham also believes that historic sites may be destroyed by the construction of aboveground transmission lines. Tr. at 234.

Brent Barnes, a resident of Stafford County, is primarily concerned about the health effects of EMF on county residents. He is willing to pay extra for Dominion to bury the transmission lines, but does not want to subsidize other counties that will benefit from the transmission lines. Tr. at 236.

Evan Ruchelman, a resident of Stafford County, is upset primarily with Dominion's efforts to notify the affected communities of the proposed transmission lines. Tr. at 242.

Alan Robinson, a resident of Stafford County, is concerned that aboveground transmission lines are prone to outages caused by damage from hurricane force winds. Mr. Robinson would like the transmission lines to be buried. Tr. at 250.

Dean Fetterolf, a resident of Stafford County, believes the community does not need the additional energy the transmission lines will provide. He fears the towers will negatively impact the aesthetic value of the county, including possible destruction of a rare orchid. Mr. Fetterolf is also concerned that the children attending the county's schools will be disproportionately affected by the transmission lines. Tr. at 260.

Merton Bunker, a resident of Stafford County, had many issues with the project including, health effects, safety, property devaluation, noise, and aesthetics. He is concerned that the weather could create an issue of safety. He testified that the transmission lines could pose safety problems for military air traffic flying overhead at low levels. He also worried that the County will lose several athletic fields if the transmission lines are built aboveground. Mr. Bunker does not oppose Dominion making a profit, but would like the Company to be a good corporate steward and take care of the people who pay the bills by burying the line underground. Tr. at 271.

Alandra Simmons, a resident of Stafford County, testified that she is very concerned about the health effects of EMF from transmission lines. Her husband was a line man and died of cancer; her daughter had leukemia. She played under power lines for many years. Ms. Simmons requests that Dominion bury the transmission lines. Tr. at 274.

Vicki Wernli, a Rodney Thompson Middle School student, is worried that children will lose their athletic fields. She is also concerned that the transmission lines will ruin the beauty of Stafford County. Tr. at 275.

Laura Rodier, a resident of Stafford County, fears the effects that EMF from the transmission lines will have on her own children's health and the children attending schools in the county. Tr. at 277.

Scott Clemons, a resident of Stafford County, is worried that children will lose wonderful outdoor play areas if the transmission lines are constructed aboveground. He is also sure that the transmission lines will decrease property values. Mr. Clemons recommends Dominion either reroute or at least bury the lines. Tr. at 283.

Tami Burkhardt, a resident of Stafford County, is most concerned about the lines' effect on county schools and asks that Dominion bury the transmission lines. Tr. at 286.

Kelly Haden, a resident of Stafford County, testified that "[t]he noise and hideous aspect of these towers will snake through our lovely county like a scar." If the lines are built, Ms. Haden's children will walk to and from school every day under the lines. Tr. at 290-92.

Joel K. Snively, a resident of Stafford County, stated that he and many residents were deceived by Dominion. He is also concerned about an aboveground transmission line's vulnerability to attack by our enemies, and would prefer that Dominion bury the lines. Tr. at 293.

Bob Ford, a real estate professional and resident of Stafford County, spoke from experience of the detrimental effect of aboveground transmission lines on real estate. Mr. Ford would like to see the transmission lines buried. Tr. at 298.

Richard Fansler, a resident of Stafford County, spoke in favor of undergrounding the transmission lines. Tr. at 300.

Michael Lennon, a resident of Stafford County, stated that he formerly worked for Verizon for 15 years. He is quite familiar with underground cable and recommends that Dominion bury the transmission lines. Tr. at 302.

Brian Green, a resident of Stafford County, favors burying the transmission lines or at least providing a buffer zone of trees and shrubs between the transmission lines and residential property. Mr. Green also is concerned about environmental impacts to wetlands. Tr. at 309.

Cynthia Kuehn, a resident of Stafford County, expressed her concerns about possible EMF effects on her health and on school children at Rodney Thompson Middle School. Ms. Kuehn's home is within 100 feet of the easement. The close proximity of the line to her home will reduce the value of her property and damage the aesthetic qualities of the County. Furthermore, she is worried about the safety of her house in the event that the towers fall. Ms. Kuehn would like Dominion to bury the transmission lines. Tr. at 314.

Mahmood Mirheydar, a resident of Stafford County, has a list of concerns, including: (1) the health risks associated with the EMF from transmission lines; (2) the general safety of transmission lines; (3) the potential decrease in property values; (4) the noise emanating from the transmission lines; and (5) the transmission lines' possible interference with electronics and communication devices. Mr. Mirheydar would like to see the transmission lines buried. Tr. at 322.

Deanie Secor, a resident of Stafford County, is concerned primarily that the transmission lines will mar the landscape and aesthetics of Ebenezer United Methodist Church. Ms. Secor would like Dominion to bury the transmission lines. Tr. at 327.

Mark D. Brinson, a resident of Stafford County, expressed his concern about the health effects of EMF from transmission lines and decreased property values. Mr. Brinson favors undergrounding the transmission lines. Tr. at 332.

Olivia Akkerman, a resident of Stafford County, is primarily concerned with the possible health effects of EMF from transmission lines on children. She supports undergrounding. Tr. at 340.

Melvin M. Reeves, Jr., a resident of Stafford County, opined that there should be no question of whether to bury the transmission lines. He believes the parties should spend their time figuring out how to pay to burying the transmission lines. Tr. at 343.

Luther Scaife, III**,** a resident of Stafford County, is upset that the easement was never disclosed to him before he purchased his property. He also expressed concern that EMF from the

transmission line will have an effect on the health of residents. Furthermore, he is concerned that the transmission lines will decrease his property value. Mr. Scaife would like Dominion to bury the transmission lines. Tr. at 345.

Jerry Kirven, a resident of Stafford County, is concerned about the possible effects of EMF on the health of residents. He believes that if the technology exists to bury transmission lines, Dominion should bury the transmission lines to preserve the beauty of the county. Tr. at 349.

Sherry Pemberton, a resident of Stafford County, is concerned that the transmission lines could affect the health of residents and decrease property values. She would like the transmission lines buried. Tr. at 352.

Erin Pemberton**,** a Winding Creek Elementary School student, voiced her concern about the effects that EMF could have on the health of Stafford County's residents. She does not want the lines over soccer fields and playgrounds. Ms. Pemberton would like Dominion to bury the transmission lines. Tr. at 356.

Patricia Saputo, a resident of Stafford County, is upset that Dominion is treating residents as mere dots on the map, rather than as individuals who will be negatively impacted by the construction of aboveground transmission lines. She was promised by Virginia Power in August that a representative would come to examine her property, but no one has come. Ms. Saputo is concerned that the transmission lines will decrease her property value. Tr. at 358.

Terrance Gleason, a resident of Stafford County, is concerned about the effect that EMF from transmission lines could have on the health of the County's residents. He is willing to pay extra for Dominion to bury the lines, but does not believe the County should shoulder the entire cost. Tr. at 364.

Mark Bakum, a resident of Stafford County, is concerned about the possible health effects associated with the EMF from transmission lines. Mr. Bakum is also upset that Dominion is apparently placing its "bottom line" before the community's health and safety. Tr. at 383.

T.J. Palmer, a resident of Stafford County, voiced concern about the effect that above-ground transmission lines would have on property values of military families who cannot wait for opportune times in the market to sell their homes. Mr. Palmer would like Dominion to bury the transmission lines. Tr. at 389.

Storm Capps, a Rodney Thompson Middle School student, is primarily concerned about the effect that EMF from the transmission lines could have on the health of residents, especially children. She also wondered what would happen if a huge storm hit the lines. Ms. Capps would like Dominion to bury the transmission lines. Tr. at 396.

Brad Shultis, a resident of Stafford County, expressed concern about the potential decrease in property values if transmission lines are built aboveground. Mr. Shultis would like to see the transmission lines buried underground, at least when they are located within 500 feet of schools and neighborhoods. Tr. at 402.

Albert G. Tierney, a resident of Stafford County, is concerned about the effect that EMF from the transmission lines could have on the health of residents. He stated that aboveground lines are, and should be, a thing of the past. Mr. Tierney would like Dominion to bury the transmission lines, and he is willing to pay extra to cover the cost differential, so long as the energy is being used in Stafford County and not sold elsewhere. Tr. at 408.

Karen Evans, a resident of Stafford County, expressed concern about the effect that EMF could have on the health of residents. She also expressed concern about the potential decrease in property values and damage to the aesthetic quality of the County. Ms. Evans wants Dominion to bury the transmission lines, but does not believe the residents of Stafford County should be forced to pay the cost differential. Tr. at 418.

Wanda Holloway, a resident of Stafford County, wants Dominion to bury the transmission lines underground in a remote place. Tr. at 423.

Nick Mammarella, a resident of Stafford County, expressed his concern about the possible health effects associated with EMF from transmission lines. He stated asbestos was hailed as a wonder material and safe for use in its early years. He questioned whether the scientific community will change its determination of the safety of power lines. Tr. at 428.

Brad Vierling, Wallace Vanderhoof, and Justin Farris, Garrisonville Elementary School students, are concerned that the community will lose athletic fields if the aboveground transmission lines are constructed. They stated that sports have a big impact on kids' lives. They are also concerned about the effect the transmission lines with have on the community's health and safety. They do not want to contract cancer or other diseases from sitting in a school close to a power line. Lastly, the boys are concerned that the transmission lines will ruin the aesthetic value of the community. They would like Dominion to bury the transmission lines. Tr. at 432.

Kristen Barnes, a resident of Stafford County, expressed concern about the effect of EMF on the health of school children. She is also disappointed that Dominion has waited for approximately 40 years, while subdivisions and schools were being constructed around the right-of-way, to decide to build aboveground transmission lines. Ms. Barnes would like the transmission lines buried underground. Tr. at 437.

Loretta Pikkaart, a resident of Stafford County, is skeptical that the energy is intended solely for Stafford County. She thinks the additional cost to bury the transmission lines should be shared by every community that will benefit from the electricity. Tr. at 448.

Sami Ruchelman, a Winding Creek Elementary School student, is concerned that the transmission lines will ruin the aesthetic value of Stafford County. He is also concerned that he will lose athletic fields and playgrounds as well as lose friends whose parents remove them from the schools. Mr. Ruchelman would like Dominion to bury the transmission lines underground. Tr. at 457.

Greg Riddlemoser, a resident of Stafford County, stated that the effects on health, aesthetics, and decreased property values amount to a taking of private property. Mr. Riddlemoser would like the transmission lines to be buried underground. Tr. at 460.

Randall Burdette, a resident of Stafford County, is concerned that aboveground transmission lines create additional obstacles for recreational pilots. In his capacity as the director of aviation for the Commonwealth of Virginia, he is concerned that aboveground transmission lines could mean the difference between a pilot's safe emergency landing and a disaster. Mr. Burdette would like the transmission lines to be buried. Tr. at 469.

Patti Minicucci, a resident of Stafford County, is a teacher at a Stafford County elementary school which is located within 100 feet of electrical towers. She is extremely concerned about the effects of the EMF on the health of the faculty and students in the county's schools. She believes her school has had an unusually high number of cancer cases within the last few years. Ms. Minicucci would like Dominion to bury the transmission lines. Tr. at 472.

Rebecca Yacone, a resident of Stafford County, expressed concern about the effect that EMF could have on the health of residents. She would like Dominion to bury the transmission lines. Tr. at 479.

Christine Bonnell, a resident of Stafford County, voiced her concerns about the possible health effects of EMF. She is also concerned that Dominion's sole motivation is profit. Ms. Bonnell wants the Company to pay for the transmission lines to be buried. Tr. at 484.

Patricia Breland, a resident of Stafford County, is disappointed that she cannot offer her family a safe environment to live permanently if the transmission lines are built using the proposed steel lattices. Tr. at 497.

Tom Barrow, a resident of Stafford County, does not want to be exposed to health concerns and reduced property values so that Dominion can make a profit. Mr. Barrow would like the transmission lines to be buried. Tr. at 501.

Richard Ellison, a resident of Stafford County, opined that Dominion's plan to install aboveground transmission lines does not fit with the County's vision of its future. Tr. at 507.

Paul Tracy, a resident of Stafford County, stated that the risk of putting the transmission lines above ground is greater than putting the transmission lines below ground. He would like the transmission lines buried underground. Tr. at 513.

Patricia Carrigan, a resident of Stafford County, is concerned that the possible negative health effects associated with the EMF will decrease property values. She stated there are two ways of doing things: the right way and the cheap way. Ms. Carrigan wants Dominion to bury the transmission lines. Tr. at 516.

Brian Batt, a resident of Stafford County, testified that the Dominion easement was not on the property survey. He is concerned about a potential decrease in property values. Tr. at 520.

Helen Stone, a resident of Stafford County, is concerned about the effects that EMF from transmission lines could have on children. She wants the transmission lines buried. Tr. at 529.

The Honorable William J. Howell, Speaker of the House of Delegates and a resident of Stafford County, supported the efforts to have the Commission give Dominion the authority to place the proposed line underground. He noted the unique characteristics of the proposed route and stated that underground placement of transmission lines is not unprecedented, particularly in densely populated areas of Northern Virginia. When questioned from the bench concerning the cost of undergrounding, Mr. Howell noted there are 16 other underground transmission lines in Virginia in which the costs for the lines were allocated among Dominion's entire rate base. He opined that the Commission has the authority to determine that the Company's entire body of ratepayers should pay the cost of undergrounding the proposed transmission line. Tr. at 542.

The Honorable Mark Cole, a Member of the House of Delegates and in whose district the line is proposed, noted the changed circumstances in the easement acquired by Dominion in the 1960's mitigate in favor of placing the line underground. The area is now high density residential, rather than rural farms and fields. He noted the cost of transmission makes up a small fraction of an average electric bill and placing a few miles of transmission lines underground would have a negligible impact on electric bills, when compared to the potential loss in tax base in the area adjoining the right-of-way. Mr. Cole believes it is reasonable that transmission lines that pass by residential developments or schools should be placed underground. In the long run, he believes the cost to bury the line is offset by maintaining property values along the right-of-way. Tr. at 547.

Cord Sterling, a resident of Stafford County, appeared on behalf of all the families whose children attend Rodney Thompson Middle School. He addressed the health concerns related to electric transmission lines. Although no proven link has been established between electric transmission lines and childhood cancer, he believes the risks to society are too great if the experts are wrong, as they have been in the past. He believes the increased incidence of childhood cancer in children living near transmission lines must be more than mere coincidence. Mr. Sterling noted the causal link between childhood cancer and electric transmission lines has not been disproven. Tr. at 558.

Kerri L. Farr, a resident of Stafford County, testified that overhead transmission lines are unsightly and lower property values. She expressed her concern with EMF exposure, especially as it relates to childhood leukemia. In addition, she addressed the effects of the lines on wildlife and aircraft operations at the nearby Quantico Marine Base. Her concerns could be addressed by simply burying the line. Tr. at 561.

William J. Schrantz, a new resident of Sheltons Run Subdivision in Stafford County, testified he and his wife both serve in the United States Marines and were completely unaware of the proposed transmission line until they moved into their new home two weeks prior to the hearing. Had he known, he would have purchased in another neighborhood. If the overhead towers are installed, Mr. Schrantz will move his wife and son to Alexandria to live with their grandmother. Given the couple of cents additional cost per bill, he hopes the lines are undergrounded. Tr. at 568.

Jimmy Newsome, a resident of Sheltons Run Subdivision in Stafford County, testified that his property abuts the Dominion easement and he would be directly impacted by an overhead transmission line. He noted that several of his neighbors sold their property and moved to other communities to get away from the proposed line. Tr. at 573.

Julia A. Stobbe, a realtor and a resident of Stafford County, explained § 54.1-2131 of the Code of Virginia was enacted to make realtors responsible for disclosing material facts related to the property. She would prefer that the line be buried. Tr. at 576.

Steven I. McElroy, a resident of Stafford County, testified that he moved to Stafford after his home in Los Alamos was burned to the ground in a controlled burn initiated by the National Park Service. He performed his due diligence before he purchased his house in Hampton Oaks and the Dominion utility easement was not disclosed. Mr. McElroy believes whatever equity he has been able to accumulate in his present home would be lost if the overhead transmission line is built. Tr. at 581.

Elly Flippen, a resident of Stafford County, is an M.B.A. and C.P.A. She is physically affected by transmission lines; she will experience blinding headaches and nausea if she is near the lines. She believes the lines should be buried. Tr. at 587.

Mitchell Brown, a resident of Stafford County and the AmyClae subdivision, believes the transmission line should be buried to preserve the neighborhoods along its route. He is willing to pay for undergrounding. Tr. at 589.

Scott Mayausky, the Commissioner of the Revenue for Stafford County, testified the Commission should consider all of the costs associated with electric transmission lines, which would include their impact on county tax revenues. Mr. Mayausky based his testimony on the 2006 JLARC Evaluation of Underground Electric Transmission Lines ("JLARC Study"). He noted the JLARC Study looked at the impact of an electric transmission line on property values in Henrico County. The study found that the line impacted some properties by as much as 10%, but on average between 3% and 5%. He believes the 5% number is fairly conservative for two reasons. First, the study was conducted in 2005 when the real estate market was "red hot" and buyers were willing to ignore deficiencies in properties, or the impact on value was minimized. Second, Stafford County is more densely populated than the study area and the homes in Stafford average in the half-million-dollar range. Mr. Mayauski believes that people who can afford a half-million-dollar house have options; they do not have to live next to a power line. He explained the JLARC Study looked at over 240 home sales and an impact area of 750 feet on both sides of the transmission line. The results of study showed the value of the homes in that impact area went down 3% to 5%. Mr. Mayausky replicated the JLARC Study methodology using Stafford County specific data. His analysis indicated a $17.5 million reduction in property values, which translates to an immediate loss in revenue to the county of $123,000 per year. He then looked at the loss to the county over the economic life of the electric transmission towers, which he assumed would be 50 years. Based on the county's historic growth rate of 9.7%, the $123,000 annual loss compounded for 50 years at 9.7% results in a $129 million loss in tax revenue to the county over the economic life of the electric transmission towers. Mr. Mayausky cited § 56-265.2 (b) of the Code of Virginia and opined that a loss of $129 million in tax revenue to the county is not in the public interest. The

Hearing Examiner previously asked a witness who would pay the $64 million to bury the proposed transmission line. Mr. Mayausky queried the Hearing Examiner who would pay the $129 million in lost tax revenue to the taxpayers of Stafford County. Tr. at 1141-1145.

On cross-examination, Mr. Mayausky testified he has worked for Stafford County for the past eleven years, the first three as a real estate appraiser and the last eight as Commissioner of the Revenue. He is a certified real estate appraiser, an accredited member of the International Association of Assessing Officers, and a Master Commissioner of the Revenue. He believes the Commission should not be bound by the JLARC Study, but he is endorsing the methodology in the study as sound. His analysis followed the methodology in the JLARC Study; he did not perform a comparable sales analysis. He agreed the JLARC Study found a 3.25% average decline in value for all houses in the study. He confirmed his 9.7% growth rate was based on a 26-year historic average, but the county's recent growth rate has been higher. Tr. at 1146-57.

III. *Evidentiary Hearing.*

A. Dominion's Witnesses.

For its direct case, Dominion offered the testimony of seven witnesses: Joseph M. Santuck, an engineer III in Dominion's Distribution Planning Department; Peter Nedwick, a consulting engineer in Dominion's Electric Transmission Planning Department; Jay Garrett, an electrical engineer with the Electric Transmission Group of Dominion Technical Solutions; Mark S. Allen, manager of Dominion's Electric Transmission Line Engineering Department; Donald E. Koonce, a principal engineer in Dominion's Electric Transmission Reliability Department; Gail R. Lamm, a senior siting and permitting specialist in Dominion's Transmission Right-of-Way Group; and Donald W. Hoover, a technical consultant in Dominion's Transmission Right-of-Way Group.

Mr. Santuk adopted the prefiled testimony of Robert Copper.[1] His testimony addressed the need for the proposed facilities from a distribution planning perspective. He described the proposed facilities, which include a proposed five-mile long 230 kV transmission line. All the facilities would be constructed entirely within existing right-of-way in Stafford County from the Company's existing 230 kV Possum Point – Fredericksburg Line to a new 230 kV – 34.5 kV transmission switching substation near Garrisonville. The new line would carry two 230 kV circuits to be created by tapping the Possum Point – Fredericksburg Line to create a loop in and out of the new substation. The conductors for each line would have a transfer capacity of 1047 MVA (Summer Rating), but would be rated at 722 MVA, the existing rating of the Possum Point – Fredericksburg Line. A circuit breaker would be installed on the Possum Point – Fredericksburg Line to split the line. Ex. 3, at 1-2.

Mr. Santuk explained that residential and commercial growth occurring in Stafford County west of I-95 is driving the need for the proposed transmission line. For the past six years, the electric load in the area has grown at a rate of 5.7% per year. It is expected to grow at rate of 5% per year through 2008 and 4% per year through 2011. This load growth results in the projected load exceeding the capacity of the current distribution facilities in the next five years. Under the Company's normal (non-contingency) load projections, one 230 kV – 34.5 kV transformer and two

[1] Ex. 3.

distribution circuits are projected to overload during peak usage periods. The proposed facilities are needed to meet the Company's projected peak demand during the summer of 2009. Ex. 3, at 4-9.

On cross-examination, Mr. Santuk confirmed that the Company would underground a 34.5 kV distribution line at the request of a customer, but the customer would be responsible for paying the difference in cost between an overhead and underground installation. Tr. at 671-74.

In his rebuttal, Mr. Santuk addressed several items in the Staff Report.[2] First, he disagreed with the Staff's annual load growth of 4.8%. He stated the five distribution circuits serving the Garrisonville load should have included a portion of the Aquia # 428 load. This results in an annual load growth of approximately 6%. Mr. Santuk stated the primary need for the Garrisonville Switching Station is to relieve normal circuit and transformer overloads projected to occur by June 2009, and provide backup capacity for circuit and transformer contingencies at the Stafford Switching Station. Ex. 41, at 2.

Mr. Santuk addressed the possibility of uprating the Company's conductors and switches to gain extra capacity. He believes it would not be economically feasible because all five distribution circuits would have to be completely rebuilt. Additionally, he testified that the vacant land at the Company's Stafford Switching Station is a drainage area, not suitable for constructing any equipment upgrades. Mr. Santuk confirmed that underground getaways are acceptable to exit the Stafford Switching Station, but the Company would have to obtain additional underground easements to extend the circuit getaway beyond the confines of the station. Ex. 41, at 3-4.

Mr. Santuk responded to the Staff's suggestion that the Company underground its existing distribution line in the right-of-way to permit a tree screen for the transmission line. He testified that to underground 1.3 miles of double-circuit and 1.7 miles of single-circuit would cost in excess of $1 million. Ex. 41, at 4.

Mr. Nedwick's testimony addressed the need for, and benefits of, the proposed facilities from a transmission planning perspective.[3] He described the current transmission and distribution facilities in the project area. He explained that to meet the load growth occurring in the Garrisonville area, the Company needs a new transmission source to serve a new distribution substation. In addition to meeting the electric distribution needs of the Garrisonville area, the proposed transmission line would increase the reliability of the Company's 230 kV transmission system, and facilitate future development of its 230 kV transmission system in the area and the region. Mr. Nedwick described how the proposed project is superior to other transmission or generation alternatives considered by the Company, and why reliable electric power supports economic development in Virginia. Ex. 4, at 2-6.

[2] Ex. 41.
[3] Ex. 4.

Mr. Nedwick addressed the Company's two underground alternatives and their impact on the Company's current and future transmission plans.[4] He addressed the issues common to both underground proposals:

(1) the Company would have to obtain the right to construct underground facilities within its existing right-of-way;
(2) the center of the right-of-way would be used to construct an underground alternative;
(3) the Company would have to acquire additional land to accommodate an underground line at its Aquia Harbour Terminal Station and the Garrisonville Switching Station;
(4) the Company would have to modify the Aquia Harbour Terminal Station and modify the design of the Garrisonville Switching Station to accommodate an underground line;
(5) the Company would use cross-linked polyethylene ("XLPE") solid dielectric underground cable encased in a concrete ductbank with two cables per phase per circuit and space for the installation of an additional cable in the event the rating of the Possum Point – Fredericksburg Line is increased in the future; and
(6) the Company would still be able to split the Possum Point – Fredericksburg Line to provide the reliability benefits of its overhead alternative.

The difference between Option 1 and Option 2 relates to the number of circuits that would be built. To provide the same transfer capability and redundancy as its overhead alternative, Option 1 would be built with two underground double circuits, each with a transfer capability of 722 MVA. Option 1 has an estimated cost of $82.3 million. Option 2 would have one underground circuit in a radial configuration with a transfer capability of 722 MVA. Option 2 has an estimated cost of $48.44 million. Mr. Nedwick explained that Option 1 is an electrically acceptable alternative to the Company's proposed overhead line. He explained the choice between Option 1 and Option 2 is a trade-off between cost and reliability. Option 2 does not provide the same degree of reliability as the Company's proposed overhead line. Ex. 5, at 1-5.

On cross-examination, Mr. Nedwick confirmed that up to four 230 kV transmission lines could terminate at the new Garrisonville Switching Station.[5] He further confirmed the Garrisonville load growth could be satisfied with the Company's future Bristers – Garrisonville Line; however, the Bristers – Garrisonville Line would not address outages on the Company's Possum Point – Fredericksburg Line, which would leave approximately 30,000 customers without power. Tr. at 681-704.

On redirect, Mr. Nedwick confirmed the Company looked at the Bristers – Garrisonville Line as an alternative to its current proposal, but rejected it because of its longer length, higher cost,

[4] Ex. 5.
[5] Fredericksburg – Garrisonville 230 kV Line; Possum Point – Garrisonville 230 kV Line; Bristers – Garrisonville 230 kV Line; and Morrisville – Garrisonville 230 kV Line.

and the fact it would not address an outage on its Possum Point – Fredericksburg Line. He noted the Company's current proposal allows for better integration of its 230 kV transmission system. Tr. at 704-711.

In his rebuttal, Mr. Nedwick addressed the Staff's conclusions with respect to the need for the project, and the Staff's comments on the Company's long-range planning.[6] In particular, Mr. Nedwick noted the reasons supporting the Staff's conclusion that the proposed project is superior to any other alternative:

(1) a significant overall shortening of the circuits that serve the Garrisonville load area;
(2) better distribution of loads along the three new circuits;
(3) circuits that would serve the Garrisonville load area from two independent substations;
(4) better circuit back-up capability to load on both sides of I-95;
(5) less distribution construction and lower distribution cost;
(6) preservation of substation and circuit capacity east of I-95 to serve load east of I-95; and
(7) the project supports the long-term integration of the Company's 230 kV facilities in the Northern Virginia region.

Ex. 42, at 1-2.

Mr. Nedwick described the benefits that would be achieved from networking the Garrisonville Switching Station. If an outage were to occur, fewer customers would lose power and the Company could restore power more quickly. He stated a fundamental difference between a substation located on a networked transmission line versus a substation located on a radial transmission line is the ability to sectionalize and restore to service substation transformers for transmission outages. Ex. 42, at 2-3.

Mr. Nedwick confirmed the Company's preferred underground alternative is Option 1, which provides networked transmission service to the Garrisonville load area. The Company believes Option 2 exposes those customers to some reliability concerns because they would be served by a radial transmission line until 2014, when the Bristers – Garrisonville Line is projected to be built. Ex. 42, at 3.

Mr. Nedwick responded to Stafford County witness Lanzalotta's testimony concerning a hypothetical overload on one of Mr. Lanzalotta's underground Option 2.1 circuits, which would cause a breaker to trip. He confirmed an overload would require manual intervention to correct and would result in a National Electric Reliability Council ("NERC") reliability violation. For certain NERC contingencies, Mr. Nedwick confirmed that the Company cannot switch load manually. Tr. at 1081-83.

[6] Ex. 42.

Mr. Nedwick testified that underground Option 1.1, which would be rated at 430 MVA, could not handle network flows that could potentially be as high as 729 MVA, which would overload the circuit. He explained that underground Option 2.1 would be rated at 361 MVA, rather than 430 MVA, because the individual circuits are located in the same ductbank and are subject to mutual heating effects. Mr. Nedwick described other potential outages that could be associated with Option 2.1 that would violate NERC reliability standards. Tr. at 1084-86.

Mr. Nedwick responded to Stafford County witness Simmons' suggestion that a 230 kV double-circuit line could be constructed on the same tower as a 500 kV double-circuit line, with the resulting visual impact limited to one set of towers. Mr. Nedwick testified that such an arrangement could result in a cascading outage if the 500 kV line were to experience an outage. Tr. at 1086-87.

Mr. Garrett's testimony addressed the design of the proposed Garrisonville Switching Station.[7] The station would be located entirely within the Company's right-of-way off Mountain View Road approximately 0.3 miles north of Shelton Shop Road in Stafford County. The proposed transmission line would tap the Possum Point – Fredericksburg Line and be looped through the station with a transmission breaker installed to split the line, creating two circuits between Possum Point and Fredericksburg. The proposed overhead line would carry both circuits on the same double-circuit structure. Initially, the station would consist of a single 75 MVA step-down transformer and all ancillary equipment required to feed three 34.5 kV distribution circuits. The station design would accommodate the future build-out of the Company's 230 kV transmission system. The estimated cost of the Garrisonville Switching Station is $4.76 million. Ex. 8, at 2-4; Tr. at 715.

Mr. Garrett's testimony also addressed the substation modifications needed to accommodate underground Options 1 and 2.[8] Both options would require the Company to acquire additional land at Aquia Harbour to construct an overhead transition and switching station. Both options would require the Company to acquire additional land at Garrisonville to expand and modify the design of the Garrisonville Switching Station. Finally, the Company would have to modify its existing Possum Point and Fredericksburg Substations. Under Option 1, the Aquia Harbour Terminal Station would cost $3.41 million and the Garrisonville Switching Station would cost $8.5 million. Under Option 2, the Aquia Harbour Terminal Station would cost $3.76 million and the Garrisonville Switching Station would cost $7.28 million. The upgrades required at the Possum Point and Fredericksburg Substations are the same for Options 1 and 2 and involve the installation of additional relay protective equipment at an estimated cost of $0.1 million. Ex. 9, at 1-5.

Mr. Allen adopted the prefiled testimony of Rebecca MacDonald.[9] His testimony addressed the design characteristics of the proposed 230 kV overhead transmission line, and he provided the electric and magnetic field data for the proposed line. In addition to the two angled structures to accomplish the tap on the Possum Point – Fredericksburg Line, the proposed overhead line would be constructed on double-circuit galvanized steel lattice towers, set on concrete foundations, with a typical base width of 32 feet, supporting two sets of three twin bundled 636 ACSR (Aluminum Conductor Steel Reinforced) phase conductors in a vertical configuration with two 3#6 Alumoweld

[7] Ex. 8.
[8] Ex. 9.
[9] Ex. 10.

(Aluminum Coated Steel Wire) shield wire. The typical span length would be approximately 900 feet and the average structure height would be 130 feet, with a typical cross-arm width of 42 feet.[10] The Company is proposing to locate the transmission line in the southern portion of its right-of-way; however, to reduce the impact of the line on adjacent landowners, the Company has no objection to constructing the line in the center of the right-of-way. The estimated cost to construct the line in the southern portion of the right-of-way is $ 9.4 million for the transmission line and $4.76 million for the Garrisonville Switching Station for a total cost of $14.16 million in 2006 dollars. The estimated total cost to place the line in the center of the right-of-way is $ 9.2 million for the transmission line and $4.76 million for the Garrisonville Switching Station for a total cost of $13.96 million in 2006 dollars. Ex. 10, at 2-4.

Mr. Allen calculated the overhead transmission line's magnetic fields at maximum line loads and typical operating levels for the Company's proposed location in the southern edge of the right-of-way and the alternative, the center of the right-of-way location. For the proposed route, the magnetic field would range from 72.26 milligauss (mG) at the southern edge of the right-of-way to 1.54 mG at the northern edge of the right-of-way at maximum loads, and 34.56 mG to 0.37 mG respectively at typical operating levels. For the alternative location, the magnetic fields would be 6.11 mG at both the southern and northern edges of the right-of-way at maximum loads, and 3.69 mG and 1.77 mG respectively at typical operating levels. For comparison purposes, Mr. Allen provided the magnetic fields created by other common electrical devices.[11] Mr. Allen explained that magnetic field strength diminishes rapidly as distance from the source increases; the decrease is proportional to the inverse square of the distance. Ex. 10, at 4-5; Ex. 1, at 55-56.

In his rebuttal, Mr. Allen commented on certain aspects of the construction and cost of the proposed transmission line.[12] He explained that constructing the overhead line using monopoles, rather than lattice towers, would increase the cost from $9.4 million to $10.2 million. The difference in cost is approximately $151,000 per mile, which accounts for the increased cost in materials for the monopoles and additional concrete required to mount the poles. He confirmed the Company does not oppose the use of monopoles. Ex. 44, at 2; Tr. at 1106-07.

In response to Stafford County witness Simmons' suggestion that Dominion use a helicopter to pull the lead line, rather than a bulldozer, Mr. Allen noted that the Company usually does not use helicopters to pull a lead line primarily for safety reasons, particularly in densely populated areas. If sensitive areas or steep slopes are encountered during installation, the Company would add the lead line by hand until they are past the area, then construction would continue with suitable tracked or rubber-tired vehicles. If the line could not be installed by normal means, Mr. Allen indicated the Company would pursue helicopter installation. Ex. 44, at 3.

Mr. Allen confirmed the Company usually does not install non-reflective conductors and dulled steel transmission structures because it is more expensive. He explained the aluminum conductors and galvanized steel towers will dull naturally under normal atmospheric conditions. The Company supports the Staff position that the additional cost is not warranted. Ex. 44, at 3; Tr. at 1112.

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[10] *See*, Ex. 1, at 28 and 29, 36-39.
[11] *See*, Ex. 10, at 4. These included: a hair dryer – 300 mG; a copy machine – 90 mG; and a power saw – 40 mG.
[12] Ex. 44.

Mr. Allen explained the difficulties associated with constructing a 230 kV double-circuit transmission line on the same tower as a 500 kV transmission line, not the least of which would be an increase in the tower height by 20 plus feet to allow for vertical separation of the two lines and the different sag characteristics of the two 230 kV circuits. He stated the Company is unsure of its future transmission needs. In addition to the current project, the Company's plans provide for a 500 kV line to be constructed from Bristers to Possum Point in 2016. Beyond that date, the third line could either be a 500 kV single-circuit or another 230 kV double-circuit. If it were established that the third line was going to be a 500 kV, Mr. Allen stated it would be possible to build two sets of structures with 500 kV over 230 kV on each set. Mr. Allen testified construction of a 500 kV single-circuit line over a 230 kV single-circuit line would cost $10.9 million compared to the $9.4 million for the proposed 230 kV double-circuit line. Ex. 44, at 4.

Mr. Allen confirmed that the Company does not support relocating the line north in the right-of-way in the vicinity of the Austin Ridge Park. This would place six homes in the Hampton Oaks subdivision within the 335-foot right-of-way. He confirmed the Company would locate the structures for the overhead line to minimize the impact on the Rodney Thompson Middle School. Finally, Mr. Allen addressed the angled turn in the right-of-way that occurs in the middle of Eustace Road and the need to place the transmission line to the west of the baseball field to avoid impacting the field. Ex. 44, at 5-6; Tr. at 1112-13.

Mr. Allen explained the Company's reasoning for proposing a 120-foot cleared right-of-way as opposed to Mr. Simmons' 100-foot cleared right-of-way. The additional right-of-way provides greater reliability and a greater margin of safety. Tr. at 1111-12.

On cross-examination, Mr. Allen clarified that along a straight route lattice towers are preferable for a transmission line. The distance between the towers can be maximized, thereby minimizing the number of towers. In contrast, monopoles might be preferable when the line has to change direction frequently. If monopoles were used in this case, the Company would try to match the same 900-foot span width as its lattice tower proposal. Mr. Allen agreed if the Company decreased the span width to 600 feet, as in its Pleasant View – Hamilton Line, it could use a shorter tower, but would have to use more of them. Tr. at 1115-19.

Mr. Allen was unsure how long it would take a new galvanized steel tower or its conductors to weather, but believes it might be a few years. He restated the Company's position that shorter towers would impact the Company's ability to place a 500 kV line in the right-of-way in the future.[13] Tr. at 1119-20, 1127-28, and 1134.

Mr. Koonce's testimony focused on the design characteristics of the two underground alternatives, the reliability and construction differences of underground and overhead transmission lines, and EMF related to underground transmission lines.[14] The Company included two underground alternatives in its Application: Option 1 consists of two transmission circuits, and Option 2 consists of one transmission circuit.[15] Each underground circuit would consist of two

[13] To cover the five-mile distance one would need approximately: 30 monopoles using 900-foot spans; 38 monopoles using 700-foot spans; or 44 monopoles using 600-foot spans.
[14] Ex. 11.
[15] *See*, Ex. 12, at 1-2.

XLPE cables per phase and would have an operating voltage of 230 kV and a transfer capability of 722 MVA, which is the limitation on the Possum Point – Fredericksburg Line. Each circuit would be installed in a concrete ductbank with nine 6-inch PVC conduits. For each circuit, six conduits would contain one power cable each, and the three remaining conduits would remain empty to facilitate a future increase in transfer capability if the rating for the Possum Point – Fredericksburg Line is increased in the future. In addition, two 2-inch conduits would be installed for fiber optic control circuits and sheath bonding cables for each circuit. The underground alternatives would be located at or near the center of the existing 335-foot right-of-way. For Option 1, the two circuits and their respective ductbanks would be separated by 10 feet. Mr. Koonce addressed the improvements required at the Aquia Harbour Terminal Station and the Garrisonville Switching Station to accommodate the underground alternatives. Ex. 11, at 3-5.

Mr. Koonce provided a cost summary for Options 1 and 2. The total cost for Option 1 is $82.30 million (2007 dollars). This consists of $70.29 million to acquire the underground rights and construct the two circuits; $8.50 million to acquire additional land and construct the Garrisonville Switching Station; $3.41 million to acquire additional land and construct the improvements to the Aquia Harbour Terminal Station; and $0.1 million for upgrades to the Possum Point and Fredericksburg Substations. The total cost for Option 2 is $48.44 million (2007 dollars). This consists of $37.30 million to acquire the underground rights and construct the single-circuit; $7.28 million to acquire additional land and construct the Garrisonville Switching Station; $3.76 million to acquire additional land and construct the improvements to the Aquia Harbour Terminal Station; and $0.1 million for upgrades to the Possum Point and Fredericksburg Substations. Ex. 11, at 5.

Mr. Koonce testified that underground transmission lines are less susceptible to weather outages; however, when an outage does occur it takes significantly longer to repair. While it may take several hours to repair an overhead transmission line, it may take 7 to 10 days to repair an underground transmission line. From an operational standpoint, underground transmission lines require additional operational safeguards when faults occur in the line, which might delay returning the line to full service. Mr. Koonce believes Option 1 offers greater reliability to the customers that would be served by the Garrisonville Switching Station. Option 1 offers the same redundancy as the Company's overhead alternative. Ex. 11, at 7-9.

Mr. Koonce testified the construction impacts (noise, dust, and traffic) on the surrounding neighborhoods for an underground transmission line are much greater than for an overhead line. Ex. 11, at 9-10.

Mr. Koonce testified that, contrary to common belief, burying transmission lines has little impact on the EMF emitted by the lines. In many cases, the EMF could be greater because the person could be standing directly over the line. He noted, however, that certain phasing arrangements can be employed to reduce the overall EMF strength when there are two electrically parallel cables in a common ductbank, compared to a design with only one cable per phase. Mr. Koonce contrasted the maximum EMF numbers in the Company's Application with the EMF numbers that would be likely to result under normal operating conditions. The normal operating numbers were significantly lower. For Option 1, the maximum EMF at the northern edge of the right-of-way would be 18.20 mG and at the southern edge would be 15.63 mG. For Option 2, the

maximum EMF at the northern edge of the right-of-way would be 14.29 mG and at the southern edge would be 12.93 mG. Ex. 11, at 11-13.

On cross-examination, Mr. Koonce testified that Dominion has personnel that could perform minor repairs to underground transmission lines, but a major repair would require an outside contractor. He is unaware if Dominion has made arrangements to have a qualified contractor maintain its Ballston – Clarendon 230 kV underground transmission line, which is currently under construction. Mr. Koonce confirmed that for Option 1 if one circuit defaulted, the carrying capacity of the remaining circuit would be reduced to approximately 400 MVA until the other circuit could be repaired. Tr. at 730-36.

Mr. Koonce confirmed that it would cost the Company approximately $1.2 million to obtain the underground utility easement for Option 1, and $900,000 for Option 2. He further confirmed that the Company has pushed the proposed in-service date for its Bristers – Garrisonville 230 kV line from 2011 to 2014. This line would serve the Garrisonville Switching Station from the west and, in addition to the current proposal, is the second transmission line proposed to terminate at the Garrisonville Switching Station. Tr. at 740-42.

On redirect, Mr. Koonce confirmed that with Option 2 no repairs could be made while the other cables in the common ductbank were energized. Tr. at 743.

In his rebuttal, Mr. Koonce addressed the proposed 230 kV transmission facilities needed to serve the proposed Garrisonville Switching Station and responded to the prefiled testimony of several witnesses for the Respondents.[16] He confirmed the Company has 6,100 miles of transmission lines operating at voltages of 69 kV and above. Of this total, the Company has 18.3 miles of 69 kV, 0.075 miles of 115 kV, and 32.36 miles of 230 kV underground lines. This represents 0.83% of the Company's total transmission facilities. He noted that underground transmission facilities are rare for most utilities with service areas comparable to the Company's in Virginia and North Carolina. In most instances, the Company has had to install underground facilities when no overhead alternative was available. Mr. Koonce testified there is a viable 335-foot overhead transmission corridor available which should be used in this case. He agreed with the Staff that undergrounding as a visual mitigation measure is an expensive proposition. Mr. Koonce addressed the construction challenges associated with underground lines and the Company's reliability and repair concerns. Ex. 52, at 1-5.

Mr. Koonce addressed the Company's current XLPE pilot project and noted that several suppliers chose not to bid on the project. The result is the material costs are not representative of a typical 230 kV XLPE underground transmission line. He noted that the Garrisonville transmission line project presents another opportunity for the Company to gain experience with installing and operating a 230 kV XLPE underground transmission line. Ex. 52, at 5-6; Tr. at 1200-01.

Mr. Koonce addressed Stafford County witness Lanzalotta's concern that a possible tower failure could take both circuits out of service. Based on his experience, Mr. Koonce believes the Company could have power restored on one circuit within 24 hours, using temporary facilities. He restated the Company's position that any repairs to a faulted cable must be deferred until all cables

[16] Ex. 52.

in the ductbank can be de-energized for the duration of the repairs. He disagreed with Mr. Lanzalotta's assertion that underground cables are not subject to transient faults and named the equipment that could be subject to such faults. Mr. Koonce believes Mr. Lanzalotta's underground Option 2.1 does not have the same capacity, reliability, or redundancy as the Company's proposed overhead alternative. Ex. 52, at 6-8.

Mr. Koonce confirmed that underground Options 1.1 and 2.1 do not have the same 722 MVA capacity as the Company's Possum Point – Fredericksburg Line. Option 2.1 would be rated at 361 MVA and Option 1.1 would be rated at 430 MVA. For this reason, the Company believes underground Option 1 is the only underground alternative that offers the same redundancy and carrying capacity as its proposed overhead line. He stated the choice of underground technology, XLPE or HPFF, is driven by the nature of the project; however, the Company should continue to use both technologies where appropriate. Tr. at 1177-80.

On cross-examination and redirect, Mr. Koonce contrasted the steps the Company took to repair its HPFF transmission line located in Alexandria that was damaged when a pile was driven through the line, with the steps that would be required to repair a similar XLPE transmission line. Tr. at 1184-1200, 1204-07.

On questioning from the bench, Mr. Koonce confirmed the useful life of an XLPE underground cable would be approximately 40 years. By comparison, the Company has some 230 kV overhead transmission lines that were installed in the 1950's still in service. Tr. at 1201-02, 2007.

Ms. Lamm's direct testimony addressed the selection of the proposed route and how the Company has sought to minimize the adverse impacts of the proposed line on the public and the environment.[17] She coordinated the DEQ environmental review for the project. Ms. Lamm explained that route selection begins with a review of the Company's existing rights-of-way. Although this project has been proposed for an existing right-of-way, the Company considered alternate routes, but rejected them as disadvantageous for a variety of reasons. She addressed the right-of-way clearing and the Company's alternative proposal to route the line down the center of the right-of-way to mitigate its impact on adjoining landowners. Finally, Ms. Lamm addressed the Company's community outreach efforts to advise the citizens and the local government of its proposed project. Ex. 13, at 2-5.

Ms. Lamm's supplemental direct testimony addressed the routing and environmental issues associated with the Company's two underground alternatives.[18]

Ms. Lamm confirmed that the Company has not approved the right-of-way encroachment for the recreation fields at Rodney Thompson Middle School. Tr. 745-46.

[17] Ex. 13.
[18] Ex. 14.

On cross-examination, Ms. Lamm confirmed that the Company follows the FERC Guidelines for clearing rights-of-way, constructing facilities, and maintaining rights-of-way after construction.[19] Ms. Lamm was specifically questioned whether the Company's right-of-way clearing and maintenance plan would follow the FERC Guidelines. She responded that they would generally, but she referred any questions on the specifics of the plan to Company witness Hoover. Ms. Lamm agreed that the steel lattice towers proposed in this case are not one of the newer preferred tower designs. Tr. at 756-70.

Ms. Lamm agreed the Company's underground alternatives mitigate the visual impact of an overhead transmission line and require less clearing of the right-of-way. Tr. at 771.

In her rebuttal testimony, Ms. Lamm testified that the Company will obtain all federal, state, and local permits required for the construction of the transmission line.[20] She commented on several recommendations contained in the DEQ coordinated environmental review, which were subsequently amended when DEQ sponsored the review into the record. Ms. Lamm indicated that the Company would coordinate its construction activities with the Department of Game and Inland Fisheries with regard to any freshwater mussels encountered on the project. Ex. 56, at 1-6; Tr. at 1219.

On cross-examination, Ms. Lamm confirmed that the Company would have to file a Joint Permit Application ("JPA") for this project. The JPA would address any impacts on wetlands or streams found along the project route. Tr. at 1220-22.

Mr. Hoover's testimony addressed the Company's need to acquire additional property and easements to construct either of the underground alternatives, and the impact of construction and operation of underground transmission facilities on existing uses in its right-of-way.[21] He explained the Company's easements allow for the construction of an overhead transmission line, but the Company would have to acquire underground rights to construct within the same easement. He addressed the need to acquire additional property at Aquia Harbour to construct the Terminal Station, and at Garrisonville to construct the Switching Station for underground Option 1. For underground Option 2, the Switching Station could be constructed entirely within the Company's existing right-of-way. Mr. Hoover explained a fifty-foot strip would be cleared to construct either of the underground alternatives and the construction would require a continuous open trench. He addressed the impact of construction on the Stafford County Parks and Recreation Department and Sheltons Run Subdivision. The County has an approved encroachment for the Autumn Ridge Park, which includes playground equipment and athletic fields. Sheltons Run has an approved encroachment for playground equipment and athletic fields. He confirmed that the Stafford County School Board does not have an approved encroachment for the athletic fields next to Rodney Thompson Middle School. Whether approved or not, Mr. Hoover explained the encroachments would not be permitted to the extent they interfered with construction. He stated the limitations after construction would include no aboveground structures with foundations more than two feet

[19] The FERC Guidelines address the protection of natural, historic, scenic, and recreational values in the design and location of rights-of-way and transmission facilities. *See*, Ex. 15.
[20] Ex. 56.
[21] Ex. 16.

deep, no hardwood trees, no below ground facilities such as drain fields or wells, and no grade changes within the fifty-foot cleared strip. Ex. 16, at 2-4.

On cross-examination, Mr. Hoover clarified that construction of either of the underground alternatives would minimally impact existing uses of the right-of-way by third parties. Tr. at 775-81.

On questioning from the bench, Mr. Hoover stated that the Company would have to clear 120 feet of right-of-way whether the overhead line was constructed on lattice towers or steel monopoles. He stated the industry standard, and the Company's standard, is 120 feet of right-of-way for a 230 kV transmission line. Tr. at 784-85.

In his rebuttal, Mr. Hoover responded to:

(1) Stafford County witness Simmons' testimony regarding a clearing plan for the construction and operation of the proposed transmission line;
(2) Towering Concerns witness Secor's testimony regarding aspects of the Company's right-of-way related to the construction and operation of the proposed transmission line; and
(3) Stafford County witnesses Dudenhefer and Belman's testimony regarding impacts of the proposed transmission line on schools, parks, and recreation areas.[22]

Ex. 57, at 1.

Mr. Hoover testified the Company developed a Stafford to Garrisonville Clearing and Danger Tree Cutting Plan, which meets NERC standards for maintaining required clearances while mitigating impacts on the natural and human environment. The plan is Attachment DWH-1 to his rebuttal testimony. Ex. 57, at 2.

Mr. Hoover provided a copy of the easement granting the right-of-way over Mr. Secor's property. In addition, he provided the reference to the VEPCO Plat Book where the easement could easily be located. Mr. Hoover explained that he found a copy of the subdivision plat showing the location of Mr. Secor's lot and the Company's 335-foot right-of-way. He noted that the subdivision plat was recorded in the Stafford County Circuit Court Clerk's Office two years before Mr. Secor purchased his home. Mr. Hoover explained the right-of-way is also shown on the plat for the Austin Ridge, Autumn Ridge, and Hampton Oaks Subdivision plats, as well as marketing materials used by Brookstone Homes for its Berkshire Subdivision. Ex. 57, at 2-4.

Mr. Hoover explained the extent to which the Company's right-of-way was surveyed and marked. There are small monuments permanently installed on the centerline of the right-of-way and signs along the exterior boundaries of the right-of-way. In the late 1980's Mr. Hoover supervised the tree crews that cleared a 15-foot strip along the northern and southern edges of the right-of-way to delineate its boundaries. At that time, the signs were placed along the northern and southern edges of the right-of-way. In February 2007, Mr. Hoover walked the right-of-way and

[22] Ex. 57.

located 105 of the boundary signs. He confirmed there are no signs along the portion of the right-of-way that borders the Sheltons Run Subdivision. Signs were originally placed in the area, but may have been disturbed by construction occurring at a later date. He noted that the easements creating the right-of-way are on file in the Stafford County Circuit Court Clerk's Office. He does not know why the right-of-way does not appear on the Stafford County GIS mapping system. He noted that Stafford County's own disclaimer on its GIS system states that users of the GIS tax maps cannot rely on them for accurate locations or legal descriptions of property rights. Ex. 57, at 5-7.

Mr. Hoover testified that the easements that created the right-of-way do not require the Company to provide notice to subsequent purchasers of the land. He stated the easements have been recorded in the Circuit Court Clerk's Office and are available to the public. Ex. 57, at 8.

Mr. Hoover stated that encroachments on the Company's right-of-way are either authorized or unauthorized. He described an authorized encroachment as a use of the right-of-way that has been approved by the Company. He gave examples of the approved encroachments for the subject right-of-way, including the approved encroachment for Mountain View High School. He stated that unauthorized encroachments occur when construction or other improvements are made without the Company's knowledge or permission, which includes the athletic fields at Rodney Thompson Middle School. Ex. 57, at 8-11.

Mr. Hoover explained the difference between authorizing an encroachment and abandoning a right-of-way, or some portion of a right-of-way. The Company executes and records a quit claim deed to abandon its easement to the landowners. He noted that over the years the Company has received several requests to abandon portions of its Stafford – Garrisonville right-of-way and it has consistently declined to do so. Ex. 57, at 11.

Mr. Hoover explained the error in the location of the right-of-way on the Shadow Woods Subdivision plat. He explained that Dominion contacted the company that prepared the plat but the company refused to correct its mistake. He explained the Company's easements were recorded approximately 20 years prior to the erroneous subdivision plat and the plat does not alter the location of the right-of-way. From the Company's perspective, there is no boundary dispute. Ex. 57, at 12-13.

Mr. Hoover restated the Company's procedures for providing information to callers, such as Mr. Secor, when they inquire about a right-of-way. Mr. Hoover believes Mr. Secor might have been told the Company had no plans at the time of his call to construct transmission facilities in the right-of-way. He confirmed no one within the Company would have been authorized to tell Mr. Secor that the Company would never use the right-of-way. Ex. 57, at 13-14.

In response to Stafford County's witnesses Dudenhefer and Belman, Mr. Hoover testified there are numerous locations on the Company's transmission system in which its transmission lines coexist with schools, parks, and recreation facilities. In particular, he noted the authorized encroachments at the Widewater School and Mountain View High School in Stafford County, and the public basketball and tennis courts in Aquia Harbour. Mr. Hoover further testified that the presence of transmission lines is not inconsistent with residential or commercial uses. He provided photos of such uses taken in Stafford County. Ex. 57, at 14.

Mr. Hoover explained the history and development of the Memorandum of Understanding ("MOU") between the Company and the Northern Virginia Park Authority for tree maintenance along the W&OD Trail. For 11 years, Mr. Hoover actually maintained the Company's right-of-way along the trail. As a result of public concern over the Company's tree-trimming practices, the MOU was entered into and covers future trimming along the trail. Primarily, the MOU provides a stricter trimming standard in the area of conductors and a lesser standard along other portions of the line. Mr. Hoover also addressed the approach the Company is going to take on a portion of the trail that will be used by its Pleasant View – Hamilton Line. Tr. at 1230-39.

Mr. Hoover stated the clearing plan that he filed with his rebuttal testimony is fairly general at this point because the actual route, southern edge or middle of the right-of-way, has not been established. He noted that once a route has been established, he and the resident forester could work to delineate sensitive areas and species to retain. Mr. Hoover indicated that the Company would work with adjoining property owners in developing the plan. Tr. at 1240-41.

Mr. Hoover agreed that the weak link in right-of-way clearing is the contracted tree-trimmers. He explained the lengths to which the Company has gone recently to supervise the day-to-day work of its contract tree-trimmers, including hiring a certified arborist to be onsite at all times. Tr. at 1242-45.

On cross-examination, Mr. Hoover confirmed his plan would be to meet with affected homeowners before the right-of-way clearing begins in their area. He agreed that the Company and its contractors are familiar with the FERC guidelines related to the clearing of rights-of-way, constructing facilities, and maintaining rights-of-way after construction. He also agreed the Company could work within the FERC guidelines in clearing and maintaining the subject right-of-way. Tr. at 1246-53.

Mr. Hoover testified that the W&OD Trail needed a Memorandum of Understanding ("MOU") because it is unique. There is no need for such an agreement for the subject right-of-way. He agreed the Company would not uniformly clear all the vegetation in the right-of-way, but would work to maintain the maximum vegetation possible. For right-of-way maintenance, specific plant species would be targeted for herbicide application. Tr. at 1254-57.

Mr. Hoover restated that all calls concerning rights-of-way received until December 1997 were referred to Ms. Farmer for a response. At present, a caller might be told what is in the Company's five- or ten-year plans for a specific right-of-way. Mr. Hoover is unsure what procedures were in place in 1997. Mr. Hoover was questioned on the Company's stated plans in 1996, that up to three transmission lines were planned for the right-of-way, and whether that information would have been relayed to someone calling the Company. He agreed it was consistent with Company policy for Mr. Secor to have been told the Company had no current plans to use the right-of-way. Mr. Hoover was unwilling to speculate what someone would have been told if they came across one of the right-of-way markers and called the Company's local district office. Tr. at 1258-68.

On redirect, Mr. Hoover explained the extent to which FERC has more strictly enforced right-of-way clearing policies after the blackout of 2003. Tr. at 1270-72.

For its rebuttal case, Dominion offered the testimony of six additional witnesses: Philip Cole, M.D., professor *emeritus* of epidemiology at the University of Alabama at Birmingham; David F. Koogler, director of state regulation for Dominion Power; John D. Smatlak, vice president of Electric Transmission for Dominion; Katherine Farmer, senior financial analyst – Generation Planning & Analysis for Dominion; Curt J. Westergard, president of Digital Design & Imaging Services; and Richard L. Parli, president of Parli Appraisal, Inc.

Dr. Cole's testimony addressed the issue of EMF and its effects, if any, on human health.[23] He summarized the current state of research on EMF. He testified that the question of EMF as a possible cause of cancer in humans has been investigated in more than 200 epidemiological studies over the past 28 years. Additionally, there have been hundreds of animal and molecular studies reported. Finally, regulatory and academic bodies have reviewed the question. Dr. Cole testified that despite this extensive research, EMF is not recognized as a human carcinogen. He testified no scientific or regulatory body, including the International Agency for Research on Cancer ("IARC"), the cancer research arm of the World Health Organization, has categorized EMF as a human carcinogen. He stated there is no precedent for an agent that has received so much scrutiny as EMF, and has failed to be recognized as a carcinogen, to be later so recognized. Ex. 40, at 2.

Dr. Cole addressed the "California EMF Report," which was mentioned by several of the public witnesses. He believes the Report is limited, unconventional, and unreliable. He explained the Report is a literature review and not an original study, and may not have used all available information on EMF and cancer. Dr. Cole believes the Report reflects only the views of the three reviewers, who were not consistent among themselves in their judgments; the Report was not peer-reviewed. He stated their judgments were based on a self-assigned credibility score which is not the manner in which scientists ordinarily assess a body of literature. For these reasons, Dr. Cole places little confidence in the Report. He noted that the Report does not imply that EMF is a recognized cause of cancer in humans. Ex. 40, at 2-5.

Dr. Cole also addressed the "British EMF Study," which was mentioned by several of the public witnesses. He addressed five factors which he considers important when interpreting the Study. First, the Study is based on childhood cancer cases and controls dating back to 1962. The Study uses the proximity of the child's residence to power lines, without actually measuring the EMF levels to which the child might have been exposed, either from the power lines or other sources found in the home. Second, the Study related to children with leukemia or with brain cancer. Dr. Cole stated the Study is categorically negative for brain cancer. For leukemia, the Study shows an inconsistent relationship between risk and a child's presumed residential proximity to power lines. Third, the distribution of the residences of the controls, not those of the cases, appears to produce the weakly positive results for leukemia that were reported. It should be the reverse. Fourth, the findings of the Study are inconsistent with another more refined study published in 2000 by the UK Childhood Cancer Study Group. Dr. Cole stated that the Study found no relationship whatever between childhood leukemia and exposure to EMF or the proximity of the children's homes to power lines. Finally, Dr. Cole stated that even the authors of the Study disclaimed that they were reporting a causal relationship between EMF and childhood cancer. Ex. 40, at 5-6.

[23] Ex. 40.

Dr. Cole summarized his position on the health effects of EMF:

> [a]t present, EMF is not recognized as a cause of, or contributor to, any disease of human beings. In my opinion and based on my knowledge of the EMF literature and of the history of cancer epidemiology, it is unlikely that EMF will prove to be a cause of cancer in human beings.

Ex. 40, at 7.

Dr. Cole contrasted the research on smoking and lung cancer with the research on the health effects of EMF. He noted each new smoking study produced findings that were strong, consistent, and biologically plausible. In contrast, over the past 30 years, the studies related to EMF have produced findings that have been consistently weak, inconsistent, and implausible. Ex. 40, at 8.

Dr. Cole provided an update to his prefiled testimony concerning a recent study conducted in Denmark involving the possible carcinogenic effects of cell phone usage. Although not addressed specifically, Dr. Cole considers EMF to be a subset of the Danish study. The study looked at the cell phone usage of the entire population of Denmark. The study found that there was no increased risk of brain tumors overall, or tumors on the side of the head on which the phone was usually held. There was no increased risk of leukemia, tumors of the eye, or cancer overall. Dr. Cole explained why the Danish study is important. EMF and ionizing radiation are at opposite ends of the electromagnetic spectrum. Science has confirmed that ionizing radiation is carcinogenic. Radio frequency, such as used in cell phones, falls in the middle of the electromagnetic spectrum. If radio frequency does not cause cancer, Dr. Cole opined "there is apparently nothing going on at the low end of the [electromagnetic] spectrum." Tr. at 1049-51.

On cross-examination, Dr. Cole confirmed that the National Toxicology Program of the United States ("NTP"), which is part of the Public Health Service, has primary responsibility for categorizing agents as to human carcinogenicity. The NTP categorizes agents by class: agents known to be a human carcinogen are Class A; and agents that may reasonably be anticipated to be a human carcinogen are Class B. Dr. Cole stated NTP does not even categorize EMF, and further stated no agency in the United States has categorized EMF as a human carcinogen. Tr. at 1054-55.

On questioning from the bench, Dr. Cole addressed the flaws in the British EMF Study, entitled "Childhood Cancer in Relation to Distance from High-Voltage Power Lines in England and Wales: A Case-Control Study." First, the researchers did not measure the EMF from power lines at the case study's home, nor did they measure the EMF in the house caused by electric appliances. Second, the indication of leukemia in relation to power lines comes from the children in the control group, not the study subjects. Finally, any association of proximity of the study subject's home to a power line is extremely weak and inconsistent. Tr. at 1058-62.

Dr. Cole also addressed a recent Japanese EMF Study mentioned by several public witnesses, entitled "Childhood Leukemia and Magnetic Fields in Japan: A Case-Control Study of Childhood Leukemia and Residential Power Frequency Magnetic Fields in Japan." He stated this was a study that failed. Dr. Cole believes the study was flawed because its only positive finding is based on three controls. He believes the study should have focused on subjects and controls that

lived near power lines, rather than on all children in Japan. This would have eliminated the role of chance as an explanation for the one positive finding. Dr. Cole also took issue with the response rate for the study and the selection of the control group. Tr. at 1062-67.

At the request of the Hearing Examiner, the Company prepared an exhibit showing the impact on rates of both underground options.[24] Mr. Koogler prepared and sponsored Exhibit 51 into the record. The exhibit shows the cost of underground Option 1 and Option 2 apportioned only to Stafford County ratepayers, and then it shows the cost apportioned to Dominion's entire body of ratepayers. He provided a detailed explanation of each line of the exhibit, including how the costs would be apportioned among residential and non-residential customers. The results are summarized below:

	Stafford County Residential		**Virginia Residential**	
	Option 1	Option 2	Option 1	Option 2
Avg. Residential Bill	$124.00	$124.00	$101.45	$101.45
Avg. Res. Bill w/Increase	$134.43	$129.25	$101.55	$101.50
Monthly Increase	$10.43	$5.25	$0.10	$0.05
Percentage Increase	8.41%	4.23%	0.10%	0.05%

	Stafford County Non-Residential		**Virginia Non-Residential**	
	Option 1	Option 2	Option 1	Option 2
Monthly Increase				
GS-1	$11.98	$6.03	$0.14	$0.07
GS-2	$174.56	$87.82	$2.36	$1.19
GS-3	$2,689.90	$1,353.24	$41.51	$20.88
GS-4			$283.00	$142.37
§ 56-235.2 Contracts			$3,738.62	$1,880.83
Church	$28.87	$14.52	$0.50	$0.25
Outdoor Lighting	$3.14	$1.58	$0.77	$0.39

Tr. 1160-1168; Ex. 51.

Mr. Koogler assumed a 35-year accounting life of the asset, but testified that any underground surcharge would have to remain in place forever because at the end of an underground line's actual useful life, the line would need to be replaced. He explained that Exhibit 51 does not allocate any underground costs to local and state government customers in Stafford County. If he had had more time to prepare the exhibit, Mr. Koogler would have also included those customers. If the underground costs are apportioned among all of the Company's customers, Mr. Koogler noted that approximately 27.9126% of the cost would be apportioned to some of its customers that are not regulated by the Commission, including Old Dominion Electric Cooperative. Tr. 1167-70, 1173-74.

[24] Ex. 51, at 2.

Mr. Smatlak's rebuttal testimony addressed the possibility of developing the Garrisonville transmission line as a pilot project for further testing of XLPE underground cable technology. He noted if the Commission was interested in an XLPE pilot project of longer distance than Dominion's proposed one-half mile project in Arlington County, the proposed Garrisonville transmission line has the characteristics the Company would look for in a test of XLPE cable technology. Ex. 55, at 1-2.

On cross-examination, Mr. Smatlak testified that if the Garrisonville project was an XLPE pilot project, the benefits the Company would gain would accrue across the Company's entire Virginia customer base. He testified the Company would like to install a longer circuit of 230 kV XLPE cable, but it recommended an overhead alternative in this case. He confirmed under the Company's preferred underground option, Option 1, the Company could take one circuit out of service for maintenance without affecting service to Garrisonville. Mr. Smatlak was unaware whether any XLPE cable installed in the United States had gone through a complete service life cycle. Tr. at 1211-15.

On questioning from the bench, Mr. Smatlak confirmed XLPE cable is installed in other industrialized countries such as France, Germany, and Japan. He was unaware when XLPE cable was first installed in those countries. Tr. at 1216.

Ms. Farmer's rebuttal testimony responded to Towering Concerns witness Secor's statement that she had given him "unqualified assurance" that the Company had no use for the right-of-way through his property and that "the easement would never be utilized."[25] She testified that she was the supervisor of the Company's Transmission Line Right-of-Way Department in 1997. In that position, she was responsible for maintaining the Company's transmission real estate assets, including rights-of-way. During the period May 1995 through December 1997, Ms. Farmer was responsible for fielding all calls concerning the status of transmission rights-of-way. She does not remember Mr. Secor's specific call, but remembers responding to several calls regarding the east-west right-of-way through Stafford County that is the subject of this proceeding. She is certain that she did not give anyone who called about this right-of-way, any assurance, qualified or otherwise, that the Company had no use for, and would never utilize, the right-of-way. Such a statement would have been directly contrary to the Company's policy to retain its rights-of-way. Ms. Farmer believes callers might have been told there were no plans to construct transmission facilities at the time of their calls, and the callers assumed there would never be any plans to construct transmission facilities. When she responded to a caller, Ms. Farmer would refer to the Company's long-term plan, and the absence of an approved project. Ex. 59, at 1-3.

On cross-examination, Ms. Farmer stated that she formed the Transmission Right-of-Way Department in 1995. At that time, she instructed the Company's district managers to refer all right-of-way calls to her. Contact people at the Department's 800 telephone number also knew to send right-of-way inquiries to her. In general, callers were told whether the Company had immediate plans to build a transmission line. Ms. Farmer stated she would not have necessarily told Mr. Secor that the right-of-way could potentially have three transmission lines. Her response was typically limited to facts known at the time. However, Ms. Farmer knew as early as 1996 that the right-of-way could have up to three transmission lines. Tr. at 1277-88.

[25] Ex. 59.

Mr. Westergard's firm specializes in producing 3-D visualizations of proposed civil engineering, landscape, and architectural projects.[26] He was retained to review the four simulations filed in this case by Stafford County witness Simmons for accuracy and to develop visual simulations of the proposed transmission line from the same vantage points used in Mr. Simmons' photos. Ex. 60, at 1-4.

Mr. Westergard summarized his firm's approach in reviewing Mr. Simmons' photo simulations and the materials and methodology his firm used in preparing its simulations. The review included:

(1) evaluating the vertical and horizontal placement of his transmission structures;
(2) evaluating and critiquing his simulation methodology based on its ability to be replicated;
(3) recreating and comparing the eight photo simulations from the exact same vantage point used by Mr. Simmons in his simulations;
(4) evaluating the proposed centerline alternative through creation of lattice and monopole simulations from the same four vantage points as above; and
(5) attempting to minimize possible bias present in Mr. Simmons' original camera positions by using additional simulations and photos from different vantage points.

Ex. 60, at 4-7.

The photo simulations prepared by Mr. Westergard's firm are far more detailed and accurate than the simulations prepared by Mr. Simmons.[27] Mr. Westergard noted that Mr. Simmons agreed that was the case. Ex. 60, at 7-11; Tr. at 1291-92.

Mr. Westergard testified that his simulations showed very strong visual variations among the different subdivisions, particularly between Berkshire and Stowe of Amyclae.[28] His visual simulations in the subdivisions were taken from vantage points where people were most likely to congregate. Tr. at 1293-99.

Mr. Parli was retained to review Berkshire Homes witness Clauson's testimony and his study of the impact of the transmission line on property values.[29] He testified that an impact study of a detrimental condition in real estate is divided into three sections: data extraction, data interpretation, and data application. Mr. Parli found Mr. Clauson's work to be seriously deficient in all three areas. First, as to data extraction, Mr. Parli described the paired sales analysis employed by Mr. Clauson. He explained that the more adjustments the appraiser makes to isolate the condition

[26] Ex. 60.
[27] The visual simulations that are most beneficial to resolving this case are the simulations comparing lattice towers with monopoles, and comparing the southern edge and the center of the right-of-way routes. Those visual simulations would include Exhibits 4, 6, 8, 9, 13, 15, 17, 18, 22, 24, 26, 27, 31, 33, 35, and 36 attached to Mr. Westergard's rebuttal testimony.
[28] For comparison purposes, Mr. Westergard referred to his Exhibits 49 and 51 for Berkshire, and 39 and 41 for Stowe of Amyclae.
[29] Ex. 61.

being studied, in this case high voltage overhead transmission lines, the less reliable the process. He noted that the number of adjustments made by Mr. Clauson is consistently high and some differences remain unaccounted for, such as differences in the dates of sale. Mr. Parli has no confidence that the difference measured represents the actual difference attributable to the transmission line. Second, as to data interpretation, he testified that Mr. Clauson's analysis tends to support random market behavior, rather than a clear market preference away from a transmission line. Mr. Parli arranged the matched pairs by the ascending distance between the impaired and less impaired sales, and there was no trend showing a market preference for properties farther away from the transmission line. Mr. Parli's regression analysis on the influence of distance between the comparable sales and the data shows the opposite of Mr. Clauson's assertion. Finally, as to data application, Mr. Parli disagrees with Mr. Clauson's arbitrary bandwidths (6 – 12% diminution in the 0 to 500-foot zone and 0 – 6% diminution in the 501 to 1000-foot zone) for the application of the results of his paired sales analysis. Mr. Parli believes the data must be applied in the same manner in which it is extracted; otherwise, the results are erroneous and unreliable. He noted that Mr. Clauson did not extract his data in a bandwidth manner; therefore, there is no basis for application of the extracted data in a bandwidth manner. Mr. Parli refers to Mr. Clauson's conclusions as "black box," meaning Mr. Clauson provided no explanation for how his paired sales analysis demonstrates a basis for the claimed diminutions in value relative to distances from the proposed transmission line. Ex. 61, at 4-8.

Mr. Parli addressed three additional areas in which he found Mr. Clauson's work deficient. First, he noted that the text relied on by Mr. Clauson, while it does classify "Power Lines and Electromagnetic Fields" as a potential Class V – Imposed Condition, makes no judgment regarding the impact of transmission lines on surrounding property. Instead, the text states it is the "role of the appraiser or analyst is to examine real estate market data to determine whether there is any evidence of effects on property value."[30] Mr. Parli noted that not one of the 31 case studies addressed by the author related to transmission lines. Second, Mr. Parli disagreed with Mr. Clauson's conclusion that the diminution in value related to the transmission line is permanent. He noted that if this were the case, the diminution in value would be present in older Stafford County neighborhoods such Aquia Harbor. Finally, Mr. Parli disputes Mr. Clauson's reliance on several older articles related to the impact of transmission lines on residential real estate values. Mr. Parli noted that recent publications have found no price effect on properties abutting a transmission line.[31] In sum, Mr. Parli believes that Mr. Clauson's analyses, opinions, and conclusions are unreliable. Ex. 61, at 8-10.

In responding to Mr. Clauson's hearing testimony, Mr. Parli addressed again the shortcomings of Mr. Clauson's paired sales analysis, the flaws in his data, and the arbitrary assignment of the zones of influence. He noted that Mr. Clauson seemed to gloss over the actual visual impact of the transmission lines on his subject properties. Mr. Parli believes the actual view from the subject properties is an important factor in valuation. Finally, Mr. Parli reiterated the fundamental flaw in a matched paired analysis, the farther you get from an identical matched pair the less reliable the result. He provided specific examples from Mr. Clauson's report in which Mr. Parli believes the results are unreliable because of the number of adjustments made by Mr. Clauson.

[30] Randell Bell, *Real Estate Damages* at 89 (1999).
[31] Wolverton and Bottemiller, *Further Analysis of Transmission Line Impact on Residential Property Values*, The Appraisal Journal (July 2003); *See*, Tr. at 1312-13.

Mr. Parli believes the more the appraiser substitutes his judgment for that of the market, the less reliable the result. Tr. at 1302-1313.

Mr. Parli addressed his concerns with the JLARC Study. He believes the methodology used in the study for Henrico County cannot be used in Stafford County because the two real estate markets are vastly different. He stated there is no statistical or analytical value to the study. In particular, he questioned the reliability of a study based on a statistical data dump from county tax records and a simple GIS location to find the average sales price. Mr. Parli emphasized any study would need the involvement of an appraiser. Tr. at 1313-15.

On cross-examination, Mr. Parli confirmed that his testimony did not address whether the proximity to a transmission line increases or decreases the value of a home. Tr. at 1321.

On questioning from the Staff, Mr. Parli offered several recommendations concerning a possible study of the methodology to be used to determine any diminution in value that may be associated with a home's proximity to a transmission line. He stated the issue will continue to be litigated until there is a definitive case on which all parties may rely. He noted that any study, to be accurate, would have to be done by region of the state and would have to include a regression analysis of the data. Tr. at 1327-35.

B. Stafford County's Witnesses

Stafford County offered the testimony of four witnesses: Charles Simmons, a retired vice president of construction and maintenance for Appalachian Power Company; Mark Dudenhefer, vice chairman of the Stafford County Board of Supervisors; Robert S. Bellman, chairman of the Stafford County School Board; and Peter J. Lanzalotta, a principal with Lanzalotta & Associates, LLC, an electric utility consulting firm.[32]

Mr. Simmons was retained by Stafford County to review Dominion's Application, prepare photographic simulations depicting the impact of the proposed steel lattice towers, and make recommendations of methods to minimize or mitigate the impact of the Company's proposal on adjacent landowners.[33] In his opinion, the major long-term impacts of an overhead transmission line are the visual ones created by the removal of vegetation in the right-of-way and installation of the towers and conductors. He believes the installation of an underground transmission line would mitigate these impacts. Stafford County would prefer that the transmission line be placed underground. If the line is not placed underground, Mr. Simmons favors placing the line on galvanized steel monopoles, rather than steel lattice towers. This would reduce the visual impact of the line and the amount of ground disturbance during construction. His analysis shows that monopoles might have a higher material cost, but would be quicker to erect, resulting in a savings on construction costs. Mr. Simmons noted that another impact is right-of-way clearing and the need to have a clearing plan that utilizes best management practices. He believes the clearing plan should be approved by the Commission. The plan should include a vegetation inventory to identify low growing species that could be retained; a review of the relative height and location of the conductors and trees along the right-of-way to determine what trees could remain without impacting

[32] Mr. Lanzalotta also testified on behalf of Towering Concerns.
[33] Ex. 17.

reliability, in effect producing a "scalloped" visual effect rather than a "tunnel" visual effect; and supervision and monitoring to ensure the plan is properly executed by the contractor selected to perform the right-of-way clearing. Dominion did not include a clearing plan with its Application. Mr. Simmons suggested that vegetation removal could be reduced if the lead line is placed by helicopter rather than bulldozer. To further reduce the visual impact of an overhead line, Mr. Simmons recommended the use of non-reflecting conductors and dulled steel monopoles. He quantified the cost to Dominion to adopt his recommendations. The clearing plan would cost approximately $15,000, which would be offset by a ½ to 1% reduction in the cost of clearing, which the Company estimated would cost $2,819,614. Using non-reflecting conductors and dulled steel monopoles would add approximately $80,000 to the cost of the project. Ex. 17, at 1-9.

Mr. Simmons' other recommendations included:

(1) the Company should consider its future transmission plans for the right-of-way; for example, exploring the possibility of combining a 500 kV and a 230 kV line on the same structures, which would free up space in the right-of-way to provide additional buffering;
(2) the Company should explore moving the line farther north in the vicinity of the Austin Ridge Park to avoid several homes along the southern edge of the right-of-way; and
(3) the Company should consider structure locations that would have the least impact on surrounding neighbors, particularly in the vicinity of Rodney Thompson Middle School and Autumn Ridge Park.

Ex. 17, at 9-10.

Mr. Simmons clarified an issue raised by the Hearing Examiner concerning the amount of right-of-way that would need to be cleared for monopoles versus lattice towers. He stated the conductors for both structures are approximately the same width, approximately 40 feet apart, but the bases have a different footprint. He noted in previous cases the Company stated it needed 100 feet of cleared right-of-way for a double-circuit 230kV line on a monopole, rather than the 120 feet it was requesting to clear in this case. Tr. at 788-89.

In response to the Company's rebuttal, Mr. Simmons identified the source for his construction estimates as the Company's Pleasant View – Hamilton 230 kV Line, which is to be constructed on monopoles. Mr. Simmons disagrees with the cost estimates provided by the Company in this case to install monopoles versus lattice towers, an increase of approximately $750,000. From his review of the Pleasant View – Hamilton 230 kV Line, the cost for monopoles was substantially less than lattice towers. He stated that installing the lead line by helicopter is now the industry standard for installing conductors and eliminates the need to clear a swath for the bulldozer for the entire length of the line. Mr. Simmons referred to his Exhibit 21 as a great example of how a new dulled steel tower blends into its surroundings better than a 13-year old galvanized steel tower. He addressed the merits of several alternate proposals for the ultimate build-out of the right-of-way, if an overhead line is selected in this case. He responded to the Company's criticism of his proposed deflection in the route at the Austin Ridge Subdivision and recommendations for tower placement. Finally, Mr. Simmons noted that the right-of-way could

accommodate 50-foot trees without impacting the line, but the Company is proposing to have an average tree height of 15 feet. For this reason, he is proposing a tree trimming plan similar to the plan entered into between the Company and the Northern Virginia Regional Park Authority.[34] Tr. at 789-98.

On cross-examination, Mr. Simmons clarified his comments regarding the Commission's involvement in tower placement. If the Company and the County can not reach an agreement, he recommends that the Staff review the dispute and make a recommendation. Tr. at 818-20.

Mr. Dudenhefer represents the Garrisonville District on the Stafford County Board of Supervisors (the "Board"), and his testimony addressed the County's opposition to, and concerns with, Dominion's proposed transmission line.[35] The Board adopted unanimously a resolution opposing the proposed transmission line.[36] He stated the proposed line was neither routed nor designed to reasonably minimize adverse impacts on the scenic assets and environment of Stafford County. In his opinion, the line was designed and routed to minimize cost, without consideration of the damage that would be done to adjoining landowners and the County. Since the line does not reasonably minimize adverse impacts on the area through which it is routed, the County believes Dominion's Application should be denied. If a line must be built, the County urges the Commission to require that the line be constructed underground, which would mitigate many, but not all, of the line's adverse impacts. If undergrounding is rejected, the County urges the Commission to take all measures necessary to mitigate the adverse impacts of the line; however, no amount of mitigation will make an overhead line along the proposed route acceptable to the County or its citizens. Ex. 19, at 1-2.

Mr. Dudenhefer identified the subdivisions that would be impacted directly by the proposed line: Aquia Harbour; Villages of Aquia; Shadow Woods; Austin Ridge; Autumn Ridge; Berkshire; Stowe of AmyClae; Sheltons Run; Hampton Oaks; and the future Embrey Mill Estates. If the line is routed as proposed, as many as 523 single-family homes and multi-family dwelling units would be within 500 feet of the line. If the line is routed down the center of the right-of-way, 558 single-family homes and multi-family dwelling units would be within 500 feet of the line. Mr. Dudenhefer believes that for those families, the line would dominate the viewshed and have an adverse impact on property values and the County's tax base. He noted that a home in these middle class neighborhoods often represents the family's principal investment, and in many cases is their retirement nest egg. He believes it is impossible to minimize the adverse impacts of the line on these neighborhoods. Ex. 19, at 3-4.

Mr. Dudenhefer identified the four schools that would be impacted directly by the line: Margaret Brent Elementary School; Rodney Thompson Middle School; H.H. Poole Middle School; and Mountain View High School. He deferred to the Chairman of the Stafford County School Board to specifically address the impacts to the schools. Mr. Dudenhefer also identified the recreation areas that would be affected by the line. Including the recreation areas at the aforementioned schools, the line would impact a county park at Autumn Ridge and a neighborhood park in Sheltons Run. Ex. 19, at 4-5.

[34] *See*, Ex. 18.
[35] Ex. 19.
[36] Ex. 19, Schedule MD-1.

Mr. Dudenhefer believes that as long as the health effects of a power line are the subject of legitimate debate, then the fears of those who might be forced to live alongside the line should be taken into consideration when routing a transmission line in close proximity to residential neighborhoods. He also believes the transmission towers would be an inviting nuisance to children living along the route and for that reason he expressed his safety concerns. Ex. 19, at 5-6.

Mr. Dudenhefer addressed the Company's reliance on its existing right-of way as a rationale to support the route of the proposed line. He stated that "[u]sing existing rights-of-way is simply a means to achieving a certain goal; it is not the goal itself."[37] He believes that in this instance using an existing right-of-way actually exacerbates the impact of the transmission line, which defeats the rationale for using an existing right-of-way. He believes Dominion should have to prove that the route it selected adequately minimizes the adverse impacts of the transmission line. Finally, given the testimony at the public hearings, Mr. Dudenhefer is unsure whether Dominion has perfected its easement rights or has abandoned its easement. Ex. 19, at 7-9.

Mr. Dudenhefer believes undergrounding is the only reasonable alternative in this case and would greatly mitigate the adverse impacts of the line. However, if the Commission approves an overhead alternative, it should require Dominion to minimize damage to the surrounding neighborhoods and schools to the fullest extent possible. He believes Dominion's right to use other portions of the right-of-way should be "trumped" by its obligation to minimize the impacts of the proposed line. Ex. 19, at 10-11.

Mr. Dudenhefer was cross-examined about Dominion's approved right-of-way encroachment for the county's Autumn Ridge Park and the Sheltons Run neighborhood park. Correspondence from Dominion dated 1996 indicated that up to three transmission lines were contemplated for the easement, provided an eight- to twenty-year time frame for the first line, and advised the county that Dominion was retaining all of its easement rights even though it approved the encroachment for the park. Tr. at 832-50; Exs. 20, 21, 22, and 57.

Mr. Belman's testimony addressed the serious adverse impacts of an overhead transmission line on Margaret Brent Elementary School, Rodney Thompson Middle School, H.H. Poole Middle School, and Mountain View High School, and the Stafford County School Board's opposition to the proposed line.[38] The School Board adopted a resolution opposing Dominion's proposed line.[39] Mr. Belman provided a census of the number of students, faculty, and staff at the various schools that would be impacted directly by the line. He addressed the impacts to each of the schools:

(1) the line would visually impact Margaret Brent Elementary School;
(2) the line would impact the recreation fields at Rodney Thompson Middle School;
(3) the students walking to H.H. Poole Middle School from the Autumn Ridge Subdivision would have to walk directly under the line to reach the school; and

[37] Ex. 19, at 8.
[38] Ex. 23.
[39] Ex. 23, Schedule RSB-1.

(4) the new substation would visually impact Mountain View High School and future lines would cross athletic practice fields.

Mr. Belman believes owning existing rights-of-way should not be the determining factor for routing the proposed line, particularly when the easements were obtained many years ago for another project. He confirmed the School Board supports the county in urging the Commission to place the line underground. Mr. Belman believes an overhead line would be a worst-case scenario for the affected schools, and the Commission should require Dominion to mitigate the negative impacts. Ex. 23, at 1-6.

Mr. Belman was cross-examined on the deeds that conveyed the Rodney Thompson Middle School site from the Amyclae Subdivision developers to the county, and then from the county to the School Board. The plat shows the land conveyed included the 335-foot Dominion right-of-way. In addition, the design plans for the school show the school's recreation fields placed in the Dominion right-of-way. Mr. Belman was also questioned concerning the approved encroachment at Mountain View High School for athletic practice fields. Finally, Mr. Bellman was questioned on the recently approved encroachment at Whitewater Elementary School to expand the school's parking lot into a 500 kV transmission line easement. Tr. 856-78; Exs. 24, 25, 26, 27, 28, and 29.

Mr. Lanzalotta's testimony addressed whether the underground alternative should be selected to construct the transmission line.[40] In his opinion, given the state of public opinion, the inherent reliability of modern underground transmission circuits, and the difficulties in siting overhead lines, the selection of an underground alternative to serve the Garrisonville Switching Station is reasonable. He summarized his findings as follows:

(1) the overhead alternative can be expected to minimize initial capital costs compared to an underground line of similar length, but would not be more reliable than an underground line because of the extra redundancy that would be included in an underground design, and because of the exposure of the overhead line to weather-related faults and transient faults;
(2) the Company's design for a single-circuit underground transmission line provides adequate capacity for the foreseeable future, and could be made more reliable at minimal additional cost;
(3) the single-circuit underground alternative using XLPE cable would cost approximately three and one-half times the cost of the Company's proposed overhead alternative; and
(4) there are customer benefits that justify the selection of the underground alternative.

Ex. 30, at 2-4.

Mr. Lanzalotta supported his opinion that a properly designed underground alternative would be more reliable, in most respects, than the Company's proposed overhead alternative. He explained the difference between transient faults and weather-related faults. He noted that overhead transmission lines have more weather-related outages than underground lines. He stated that 40.6%

[40] Ex. 30.

of the outages on Dominion's 230 kV overhead system were caused by lightning, weather, vegetation, and unknown reasons. He believes virtually none of these faults would occur on an underground line. He noted the average equipment outage for the Company's 230 kV overhead facilities has been 13.7 hours and 11.9 hours for its 230 kV underground system. Ex. 30, at 7-9.

Mr. Lanzalotta addressed the reliability issues associated with XLPE underground cable and the Company's two underground alternatives. He noted that Option 1 has two underground circuits and costs $82.3 million, which is approximately six times more than the overhead alternative, and Option 2 has one underground circuit and costs $48.44 million, which is approximately three and one-half times the overhead alternative. Ex. 30, at 10-12.

Mr. Lanzalotta favors Option 2 with modifications.[41] He favors using the Option 1 breaker scheme with the Option 2 cable layout. In this way, a fault on one of the sets of conductors would not cause both sets of conductors to be interrupted, and service to the Garrisonville Switching Station would not be interrupted. He believes this would add approximately $1 million to the Option 2 project cost. He noted that the proposed Bristers – Garrisonville 230 kV line would allow a single underground circuit to be built from Aquia Harbour to Garrisonville without affecting the long-term reliability of the Garrisonville Switching Station. Ex. 30, at 12-13.

Mr. Lanzalotta rebutted much of the Company's testimony concerning outages and repair times on underground transmission lines. He noted that two-thirds of the faults affecting the Company's overhead transmission system are transient and these types of faults do not typically occur on an underground system. He further noted that both of the Company's underground alternatives have redundant circuits so the repair time should be less than the Company represented. Ex. 30, at 14-15.

Mr. Lanzalotta testified that Dominion did a citizen survey for a line it proposed in Loudoun County. The results indicated that the three most important criteria were: (1) maximize the distance from residences; (2) minimize visibility of the line; and (2) minimize the amount of tree cutting. Mr. Lanzalotta believes the results of the survey weigh heavily in favor of placing the line underground. Ex. 30, at 16-18.

Mr. Lanzalotta addressed the other benefits of an underground line such as the ability to add capacity in the future and avoid much of the permanent land use impacts associated with clearing a right-of-way for an overhead line. Ex. 30, at 18-19.

Mr. Lanzalotta clarified his underground Option 2.1. His proposal calls for two circuits, each with three cables. This would allow a total transfer capacity of 722 MVA, which is the rated capacity of the Possum Point – Fredericksburg Line. If one of the circuits has a fault, the remaining circuit would have the capacity to carry 430 MVA. Mr. Lazalotta believes this is more than sufficient to serve an initial 75 MVA load at the Garrisonville Switching Station. Tr. at 883-86.

As an alternative to Option 1, Mr. Lanzalotta suggested that two ductbanks be installed, each with one set of cables. This would allow a transfer capacity of 430 MVA, provide room to add additional cables to increase the carrying capacity to meet future demand, address the Company's

[41] Mr. Lanzalotta's underground option was referred to as Option 2.1.

safety and reliability concerns, and reduce the cost of Option 1 by $14 to $15 million. Tr. at 887-89.

On cross-examination, the Company sought to impeach Mr. Lanzalotta's credibility. Essentially, Mr. Lanzalotta has had no experience or responsibility for the detailed design or construction of overhead or underground transmission lines. Tr. at 895-98.

Mr. Lanzalotta agreed that if the line flows on the Fredericksburg – Possum Point Line were 500 MVA with one breaker out, the resulting line capacity would be too great to travel over underground Option 2.1, and most likely, additional breakers would trip. Tr. at 901-05.

Mr. Lanzalotta reaffirmed his testimony that transient faults cannot occur on underground transmission lines, but agreed they can occur on the aboveground equipment connected to an underground line. He confirmed that he did not include the 56-day repair time for an underground 230 kV cable damaged in Alexandria in his average repair time because the cable was not in service at the time it was damaged. Mr. Lanzalotta believes this may have had an impact on the urgency to repair the cable. Tr. at 905-11.

On redirect, Mr. Lanzalotta vouched for his 35 years' experience in electric utility system planning reliability and operations. In addition, he clarified his response concerning a breaker failure on the Possum Point – Fredericksburg Line. He believes the Company could take operational measures to reduce the capacity flow from 500 MVA to 430 MVA so that the breakers on his Option 2.1 would not trip. Tr. at 915-19.

On questioning from the bench, Mr. Lanzalotta was unwilling to offer an opinion on the average repair time of high-pressure fluid-filled ("HPFF") underground cable versus XLPE underground cable. Tr. at 921.

C. Towering Concerns Witness.

In addition to Mr. Lanzalotta, Towering Concerns presented the testimony of Meredith "Buddy" Secor, Jr. Mr. Secor testified on the impact of the proposed overhead line on his family.[42] He addressed several issues related to the Company's right-of-way easement. Finally, Mr. Secor communicated the desire of the members of Towering Concerns to have the transmission line placed underground. Ex. 32, at 3-4.

Mr. Secor testified that the edge of the right-of-way was approximately 20 feet from the north wall of his home in the Sheltons Run Subdivision. The actual transmission line would be located approximately 50 to 70 feet from his home. Mr. Secor is a utility engineer with 26 years' experience constructing high-pressure gas transmission lines and acquiring the easements for those lines. Prior to purchasing his home in 1997, Mr. Secor saw "VEPCO" penciled in on his property plat and he contacted the Company's Engineering and Right-of-Way Departments. He was told the wooded area next to his home was an inactive right-of-way purchased in the 1960's for a transmission line associated with a nuclear power plant that was never built. He was repeatedly told the Company had no plans to use the 40-year old right-of-way. Mr. Secor noted his experience with

[42] Ex. 32.

the Company was similar to other Stafford residents. The easement does not appear on Stafford County's current-day GIS mapping system. In the 10 years he has lived in his home, Mr. Secor has seen no sign delineating the easement or any activity that Dominion intended to use the easement. He confirmed neither his builder nor developer provided him a copy of the easement. Mr. Secor believes Dominion has failed to perfect its easement, since it has not complied with the language of the easement. Ex. 32, at 4-9.

From his personal perspective, Mr. Secor believes if Dominion buried the transmission line, the impact of the line would be mitigated and this would create a win/win situation for his family and the community. Ex. 32, at 9.

As the team leader for Towering Concerns, he testified the group is comprised of approximately 20 core team members representing various professions, dozens of volunteers, and a membership approaching 500. The group supports the construction of an underground transmission line to meet the demand for growth in Stafford County; however, it is opposed to overhead transmission lines and towers. Towering Concerns believes overhead transmission lines:

(1) contain unknown long-term health risks;
(2) contain safety risks;
(3) are detrimental to the environment;
(4) are detrimental to the esthetic landscape; and
(5) are detrimental to regional property values.

The group believes the vast majority of citizens in Stafford County do not oppose electric transmission lines if they are buried. Mr. Secor noted that approximately 1,727 Stafford County residents signed Towering Concerns' petition supporting undergrounding the transmission line; the group's website has received approximately 250,000 hits; and there was record attendance at the two local hearings on the proposed lines. Ex. 32, at 10-14.

Mr. Secor detailed Towering Concerns' research into the easement and the prevailing view among homeowners bordering the easement that they were "in the dark" about the existence of the easement. He views the manner in which the easement was obtained as a classic case of "bait-and-switch." Towering Concerns' research indicated the easement was obtained to support a generation facility Dominion proposed in 1963 known as the Arkendale Plant. The generation facility was proposed to be located on the Widewater Peninsula between Aquia Creek and the Potomac River. At the time, another reason cited for the easement was to connect to a 500 kV line proposed to run on a circular route from Mount Storm, West Virginia; to Ashland, Virginia; to Fredericksburg, Virginia; through western Stafford County, Virginia; curving westward south of Middleburg, Virginia; north of Front Royal, Virginia; and back to Mount Storm. The Company later modified the route in response to public opposition, and the line that was ultimately built was the Elmont – Loudoun Line. The Company obtained a 500-foot right-of-way from the proposed generation facility to the Ladysmith – Possum Point Line, and a 335-foot right-of-way from the Ladysmith – Possum Point Line westerly. The first easements were obtained in April 1965. From 1965 through 1975, the Company considered several generation projects for the Arkendale site; however, the inability to discharge heated wastewater from a nuclear plant into the Potomac River and the inability to build tall enough stacks for a fossil fuel plant, because of its proximity to the airport at

Quantico, eliminated the site for a generation facility. Dominion placed the site up for sale in 1975. In the mid 1980's, the site was sold to a development partnership, which included a real estate subsidiary of Dominion. Throughout the remainder of 1980's and into the 1990's, the development partnership pursued plans for a large-scale development at the site, which did not come to fruition. In 2000, the site was again for sale. In 2006, the Commonwealth of Virginia purchased the site for a state park. Ex. 32, at 15-20.

Mr. Secor testified the Company obtained the easements for the right-of-way through purchase agreements and condemnation proceedings. In 1968, the Company initiated condemnation proceedings on 11 properties. In the pleadings filed in the Circuit Court of Stafford County, the basis for the condemnation was to obtain the right-of-way for "the Company's Stafford – Elmont – Loudoun Transmission Line, beginning at the Elmont – Loudoun Transmission Line, and extending eastwardly through, among others, Stafford County to Company property south of Widewater, Virginia, [otherwise known as the Arkendale site] in order to furnish electric service to the public."[43] After the suit was filed, the right-of-way was obtained through agreement with four of the landowners. The right-of-way over the remaining seven properties was condemned in hearings held from 1968 through 1969. Two of the condemned properties lie within the five-mile stretch of easement at issue in this proceeding. Ex. 32, at 20-22.

Mr. Secor believes the Company's use of 40-year old aerial photographs to provide notice of its easement was "unhelpful at best, and misleading at worse."[44] The photographs were taken when the county was predominantly farmland and a homeowner doing his due diligence would have a difficult time discerning his lot along the right-of-way. Mr. Secor noted the right-of-way is not shown on Stafford County tax maps and county records are in dispute with regard to the location of the right-of-way. If Dominion had taken the simple steps of surveying and marking the right-of-way, Mr. Secor believes homeowners would have been in a better position to protect their interests. Ex. 32, at 22-23.

In response to Company witness Hoover's rebuttal testimony, Mr. Secor stated that he would have been supplied a copy of the Sheltons Run Subdivision plat after he closed on his house, not before. The plat is referenced in his deed, which he received at closing. Additionally, he stated there are no distinguishing features on the 1960's aerial photo that would make it easy to discern the location of his lot. Finally, Mr. Secor noted that Mr. Hoover's rebuttal testimony confirmed the right-of-way was not marked as it crossed through the Sheltons Run Subdivision. Tr. at 928-31.

On cross-examination, the Company sought to impeach Mr. Secor with a leaflet distributed by Towering Concerns in advance of the local public hearings. The leaflet depicts three transmission lines abreast traversing a Stafford County subdivision. While this proceeding involves only one transmission line, the Company's plan for the right-of-way could have three transmission lines, in addition to the existing distribution line.[45] Tr. 934-39; Ex. 33.

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[43] Ex. 32, at 21.

[44] *Id*. at 22.

[45] The Hearing Examiner declined to comment at the hearing, but would note that had Dominion consistently advised adjoining landowners and Stafford County of its long-range plans since acquiring the easements in 1965, perhaps intensive residential growth along the right-of-way could have been avoided. There is a tremendous difference in the message conveyed between: (1) the Company's long-range plans call for up to three 230 kV transmission lines on overhead lattice towers to be located in this right-of-way; and (2) the Company has no "current plans" to build a

Mr. Secor clarified his direct testimony. At the time he prepared his testimony, he was unaware that Dominion had surveyed the right-of-way and placed markers along the edge of the right-of-way. Tr. at 942.

D. Brookstone Homes at Berkshire, Inc.

Brookstone Homes presented the testimony of one witness, Steven D. Clauson, MAI, a real estate appraiser and consultant. Mr. Clauson was retained to conduct an analysis of the impact of the Company's proposed overhead transmission line on Brookstone Homes' Berkshire Subdivision.[46] He was tasked with determining whether the real estate market recognizes overhead transmission lines as incurable imposed conditions negatively affecting value, and if so, the extent the value of the home is impacted. Mr. Clauson's analysis indicated that the value of homes located up to 500 feet from the line would decline approximately 6% to 12% and would require extended marketing time to sell. For homes located from 501 feet to 1,000 feet, the value of the home would decline from 0% to 6%, depending primarily on the home's view of the line, and would require extended marketing time. For homes located more than 1,000 feet from the line, there would be no diminution in market value and no extended marketing time. Mr. Clauson's analysis employed a paired sales comparison, which is a methodology used by appraisers to isolate the effect on market value of a single physical characteristic of real property, such as its proximity to an overhead electric transmission line. With a paired sales analysis, the appraiser makes adjustments to remove any price differential that results from physical differences that are not under study. In this way, the appraiser can isolate the price differential that results from the physical characteristic under study. This enables the appraiser to make an "apples to apples" comparison of the two properties. Ex. 34, at 1-2.

Mr. Clauson's analysis focused on the Stafford County subdivisions of Berkshire, Stowe of Amyclae, Autumn Ridge, Austin Ridge, Hampton Oaks, and Shadow Woods. For comparison purposes, he selected 10 home sales pairings in the Loudon County subdivisions of Ashburn Village and Potomac Station. Mr. Clauson also located two comparable home sales pairings in the Stafford County subdivisions of Manors of Glenridge and Summerwood. He selected the comparison subdivisions based on their proximity to electric transmission lines; their size; and the age, size, and price of the homes. Ex. 34, at 2-3.

Mr. Clauson's paired sales analysis found that the property that was impacted by an electric transmission line sold for substantially less than its non-impacted paired property, after adjusting for differences in the physical characteristics of the homes and the date of sale. He concluded the real

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transmission line in the right-of-way. By the Hearing Examiner's estimate, Stafford County has gone through four reviews of its Comprehensive Plan since the right-of-way was acquired by the Company. As part of its Comprehensive Plan Review, the County should have looked at infrastructure improvements needed to support its economic growth strategy. Dominion's electric transmission rights-of-way, and the rights-of-way of other public utilities, should appear in its Comprehensive Plan as an overlay on a County map and these maps should be generally made available to the public. In this way, appropriate land use planning and zoning could be undertaken at the local level to avoid land uses that are potentially inconsistent with public utility rights-of-way. The JLARC Evaluation of Underground Electric Transmission Lines in Virginia, House Document No. 87 (2006) is absolutely correct in its assessment that improved communication and planning between local governments and electric utilities would significantly improve the electric transmission siting process. Tr. at 938 and 943-45.

[46] Ex. 34.

estate markets in Stafford County and Loudoun County recognize a negative impact from a home's proximity to the line. The difference in sales price could be as high as 12% for properties located in close proximity to the line, such as some of the Berkshire homes. Mr. Clauson opined the price differential seems permanent, such that each subsequent sale of an impacted property will be lower than its comparable neighbors. In addition, he opined that the impairment also results in a notably longer time to sell the home. Although he did not study the impact of an underground line on the affected properties, Mr. Clauson believes an underground transmission line would have less of an impact on property value, as compared to an overhead line. Ex. 34, at 5-6.

In response to Company witness Parli's criticism of his analysis, particularly at page 5 of his prefiled rebuttal, Mr. Clauson stated that all of his analysis and conclusions have shown that there is a consistent market preference for home buyers to purchase away from electric transmission lines, and if they do buy near a line, they are going to pay less for the home. Mr. Clauson further stated it is almost impossible to find two identical paired sales; therefore, an appraiser must make adjustments to have a basis of comparison. Mr. Clauson noted that he has appraised approximately 725 homes over the last five years. Tr. at 950-52.

Mr. Clauson further responded to Company witness Parli's criticisms by explaining that both distance and view affect diminution of value, not solely distance. He compared townhouses to single-family homes. For townhouses, Mr. Clauson decreased the influence band to 600 feet; beyond that distance the line would have no impact on the value of a townhouse. For single-family homes on large lots, Mr. Clauson set the influence band at 1,000 feet. Tr. at 952-53.

Finally, Mr. Clauson explained that his paired sales analysis used sales that occurred within two to five months of each other. He explained it is generally accepted in residential appraisal review to use sales that occur within six months of the value date for the subject property. He used six months as the outer limit for his data points. Tr. at 953-54.

On cross-examination, Mr. Clauson explained that distance and view both have an impact on value, but the primary factor is distance. For this reason, his analysis shows a greater impact on a home's value in the 500-foot band, than in the 500- to 1,000-foot band. He noted that distance impacts the view of an electric transmission line, particularly more than 1,000 feet away. Mr. Clauson agreed that topography also could have an impact on the view of a line. Tr. at 955-56.

Mr. Clauson stated that real estate appraising is an art and not an exact science. For this reason, he expressed his findings in percentage ranges for the two influence bands. Two homes in the same band might be impacted to a greater or lesser extent by the transmission line. He gave an example of a paired sale in which one home in the 500-foot band was impacted by 5%, and another paired sale in which the home was impacted by 14.4% because the transmission monopole happened to be sitting in the side yard. Mr. Clauson noted that the proposed line has not been built so it would be difficult to know the exact impact on the affected subdivisions. This was another reason why he expressed his findings in terms of averages. Tr. 958-66.

Mr. Clauson explained his Summary Chart of his Paired Sales Analysis and how he derived his impact percentage ranges for the two influence bands. He also explained why he set the influence bands at 0 to 500 feet and 501 to 1000 feet. Mr. Clauson arbitrarily selected 500 feet as

the break point because it represented the midpoint of his distance parameter and the midpoint of his 12% to 0% impact on value range. Tr. at 982-91.

E. Virginia Department of Environmental Quality.

Michael P. Murphy, director of the Division of Environmental Enhancement, sponsored the Virginia Department of Environmental Quality ("DEQ") Agency Review Report with Comments and Supplement on the subject Application into the record.[47] In addition, he provided corrections to the subject report.[48] Tr. at 999-1006.

F. The Commission Staff.

Michael W. Martin, senior utilities engineer in the Commission's Energy Regulation Division, prepared and sponsored the Staff Report on the Application into the record.[49] The Staff recommended that the Commission approve the proposed overhead transmission line alternative and issue the requested certificate of public convenience and necessity. The Staff believes that the proposed Garrisonville Switching Station and the 230 kV double-circuit overhead transmission line is the best option when considering the general public interest, construction cost, reliability of electric service, and economic development. The Staff believes the proposed Garrisonville Switching Station is the best option for new distribution circuits to be built in the Garrisonville load area. The location maximizes distribution reliability. Additionally, the Garrisonville Switching Station, and the 230 kV transmission line loop into the station, are essential elements of the expansion of the Company's 230 kV transmission system in Northern Virginia. The Staff recommended against an underground transmission line. The Staff agreed that undergrounding is a very effective visual mitigation measure; however, it believes that it is unreasonable to require the general body of ratepayers to pay for such an expensive mitigation measure. The Staff noted that the General Assembly, in its 2007 session, authorized Stafford County to create a local funding mechanism to enable underground transmission line construction. Ex. 38, at 58.

Mr. Martin addressed Company witness Smatlak's suggestion in his prefiled testimony that the transmission line be constructed as a 230 kV XLPE pilot project. He stated that in order to evaluate the project's potential worth as a pilot project, versus its cost, the study parameters would need to be established by the parties. Other than the brief mention of a pilot project, the Staff stated it has no other information to analyze or address. In general, the Staff believes that an XLPE pilot project should be considered only in circumstances in which undergrounding is necessary, and in which the Company would have installed HPFF cable. Absent detailed objectives for a 230 kV XLPE pilot project in this instance, the Staff recommends against incurring the extreme cost of undergrounding what would otherwise be an overhead transmission line. Ex. 39.

On cross-examination, Mr. Martin agreed that any zigzag in the overhead route near the Austin Ridge Park might affect the future build-out of the right-of-way, but he would have to see detailed measurements before he could express a final opinion. His recommendation for a possible

[47] Exs. 36 and 37.
[48] The DEQ coordinated environmental review listed no items of concern that would preclude construction of either an overhead or underground 230 kV electric transmission line.
[49] Ex. 38.

deflection of the line assumed two transmission lines, but may be moot if a third line is proposed. Tr. at 1015-16, 1028-29.

Mr. Martin confirmed that several manufacturers of XLPE cable did not bid on Dominion's Ballston – Clarendon Line because of the small cable order. He noted that a five-mile underground line would be atypical when considered against the Company's current portfolio of underground lines. However, he agreed that a five-mile transmission line is not atypical if the Company's entire 230 kV transmission system is considered. He agreed the Company could gain valuable information from a pilot project involving 5.5 miles of XLPE cable. Mr. Martin confirmed that the Staff has never recommended XLPE cable over HPFF cable, in an underground installation. Other than the Ballston – Clarendon Line, Mr. Martin confirmed there is no other XLPE cable operating at 230 kV installed in Virginia. He noted that the Ballston – Clarendon Line would not involve the installation of any shunt reactors, but an underground line 5.5 miles long would have to have shunt reactors. Mr. Martin believes the operation of shunt reactors is pretty straightforward, but an underground pilot would give the Company some experience with shunt reactor installations. Tr. at 1022-23, 1026-27, 1031-35.

Mr. Martin confirmed that the same peak load day that is driving the need for the new transmission line is the same day that the Garrisonville load area could no longer be backfed through distribution lines in the event of an outage occurring on the Possum Point – Fredericksburg Line. Tr. at 1036-39.

Mr. Martin agreed that the Bristers – Garrisonville Line, which is scheduled to be placed in service in 2014, would resolve the issue regarding serving Garrisonville with a radial circuit with underground Option 2. Tr. at 1039-41.

Mr. Martin confirmed that the Staff Report never addresses the diminution in real estate value in transmission line cases. Tr. at 1041-43.

On redirect, Mr. Martin confirmed that he first became aware that he needed to respond to the idea of an underground pilot project during the opening day of the hearing and he had approximately 24 hours to develop the Staff response.[50] Tr. at 1044-46.

Discussion

I. *Legal Requirements.*

As noted in the Staff Report, Sections 56-265.2, 56-46.1, 56-259, 56-235.1, and 15.2-2404 of the Code of Virginia ("Code") apply to this case.

Section 56-265.2 A of the Code requires a public utility to obtain a certificate of public convenience and necessity ("CPCN") if it intends to construct, enlarge, or acquire any facilities for use in public utility service. Extensions or improvements performed in the ordinary course of business do not require a CPCN. The statute requires an opportunity for a hearing and notice to

[50] The underground pilot was first proposed in Company witness Smatlak's rebuttal testimony filed on June 26, 2007.

interested parties before the Commission shall issue a CPCN. For 230 kV electric transmission lines, the Commission must ensure compliance with § 56-46.1 of the Code before it issues a CPCN.

Section 56-46.1 A of the Code requires the Commission to give due consideration to the effect of the proposed electrical utility facility on the environment and establish such conditions as may be desirable or necessary to minimize adverse environmental impact. The statute requires the Commission to accept any valid permit or approval issued by any federal, state, or local governmental entity charged by law with responsibility for issuing such permit or approval without imposing any additional conditions. The statute further requires the Commission to consider the effect of the proposed facility on economic development in Virginia and consider any improvements in service reliability that might result from the construction of the facility.

Section 56-46.1 B of the Code requires the Commission to: (i) ensure that notice of the proposed facilities is provided to the public, local governments, and owners of property within the transmission line's route; (ii) determine that the transmission line is needed; and (iii) determine that the proposed route will reasonably minimize adverse impact on scenic assets, historic districts, and the environment.[51]

Section 56-46.1 C of the Code requires the Commission to hold a local public hearing if one is requested by an interested party. The statute further requires the public service company to provide adequate evidence that existing rights-of-way cannot adequately serve its needs.

Section 56-46.1 E of the Code requires the Commission to provide for additional notice if a route that is under consideration differs from the route originally noticed to the public.

Section 56-46.1 F of the Code provides that a Commission-issued CPCN satisfies the requirements of § 15.2-2232 of the Code and local zoning ordinances with respect to the transmission line.

Section 56-259 C of the Code requires that a public service company consider locating its facilities in existing rights-of-way prior to acquiring additional rights-of-way.

Section 56-235.1 of the Code directs the Commission to investigate from time to time the acts, practices, rates or charges of public utilities to determine whether such activities are reasonably calculated to promote the effective conservation and use of energy and capital resources used by the utility to provide utility service.

Section 15.2-2404 of the Code permits certain named localities to establish a special tax district to pay the additional costs of undergrounding an electric transmission line through their locality.[52]

[51] Section 56-46.1 B of the Code was amended during the 2007 Session of the General Assembly. The amendments reduced the size of the transmission line to which the statute applied from 150 kV to 138 kV and added the last two sentences to the statute.

[52] The 2007 amendments to the statute added Stafford County to the list of localities.

II. *Need for the Proposed Project.*

There is no question that the Company met its burden of establishing the need to provide additional electricity to its Garrisonville load area and reliable electric service to its customers. Without an additional source of supply, the Company would be unable to meet its projected peak demand during the summer of 2009.

III. *Proposed Facilities.*

The Company's Application proposed a double-circuit 230 kV overhead transmission line that would run for five miles from the Company's existing Possum Point – Fredericksburg Line at Aquia Harbour to a new 230 kV – 34.5 kV transmission switching station to be constructed entirely within the Company's right-of-way near Garrisonville. The line would be constructed on galvanized steel lattice towers, which would be approximately 130 feet tall and would be placed at intervals of 900 feet. The Company proposed to route the line along the southern edge of its existing 335-foot right-of-way that crosses much of Stafford County from east to west.[53] The transmission line would be rated at 1047 MVA, but would operate at 722 MVA, which is the existing capacity of its Possum Point – Fredericksburg Line. The Company proposed a double-circuit to meet the distribution needs of its customers in the Garrisonville load area, increase the reliability of its 230 kV transmission system, and facilitate the future development of its 230 kV transmission system in the Northern Virginia region. In 2006 dollars, the Company estimated that it would cost $9.4 million to construct the line and $4.76 million to construct the Garrisonville Switching Station, a total cost of $14.16 million. To mitigate the visual impact of an overhead transmission line, the Company does not oppose routing the line down the center of the right-of-way. The Company estimated that it would cost $9.2 million to construct the line down the center of the right-of-way and $4.76 million to construct the Garrisonville Switching Station, a total cost of $13.96 million. To further mitigate the visual impact of an overhead transmission line, the Company does not oppose constructing the line on galvanized steel monopoles, rather than galvanized steel lattice towers. This increases the original construction cost from $9.4 million to $10.2 million, and the center of right-of-way construction cost from $9.2 million to $10 million. The cost to construct the Garrisonville Switching Station would remain $4.76 million. The Company estimates that it would need 24 months to construct an overhead transmission line and associated facilities.

IV. *Alternatives to Proposed Facilities.*

A. Alternatives: Distribution, Transmission, or Generation.

As summarized in the Staff Report,[54] other alternatives to satisfy load growth in the Garrisonville area were examined. These included serving the Garrisonville area by additional distribution, transmission, or generation. The Staff noted that it might be possible to serve the Garrisonville load growth through the five distribution circuits that currently serve the area, with the addition of a third transformer at the Stafford Substation. The Staff admitted that this approach was

[53] The Company has not finalized its plans for the remaining right-of-way. The right-of-way could either hold two additional 230 kV lines, or a 500 kV transmission line and another 230 kV transmission line.
[54] Ex. 38, at 19-42.

"substantially inferior" to the Company's proposal.[55] Both the Company and the Staff examined serving the area by additional distribution circuits. The Company rejected the distribution alternative as inferior to its proposal because: (i) the resulting distribution circuits would be twice as long as the proposed transmission line, raising reliability concerns; and (ii) the distribution alternative would cost approximately the same, $11.3 million compared to $14.16 million, without providing any benefits to the Company's 230 kV transmission system in the region. The Staff agreed that a major shortcoming of new distribution circuits built from east of I-95 is their length and their inability to tie-in with the Company's 230 kV transmission system in western Stafford County. The Staff also examined new distribution circuits from west of I-95 and found them to be impractical. The Staff summarized the advantages of the Company's proposal:

(1) a significant overall shortening of the eight circuits serving the Garrisonville load area;
(2) better distribution of loads along the three new circuits;
(3) circuits that would serve the Garrisonville load area from two independent substations;
(4) better circuit back-up capability to load on both sides of I-95;
(5) less distribution construction;
(6) lower distribution construction cost; and
(7) preservation of east of I-95 substation and circuit capacity to serve load there.[56]

Both the Company and the Staff examined other transmission sources. The Garrisonville load area is not slated to receive other transmission lines until 2014 and 2020. The Company has plans to build a 230 kV transmission line from Bristers to Garrisonville in 2014, and from Morrisville to Garrisonville in 2020. While either one of these lines could be substituted for the proposed line, there is some question whether the projects could proceed through the regulatory process for construction to be completed by the summer of 2009. Additionally, neither one of the foregoing projects provides the same degree of integration of the Company's 230 kV transmission system in the region as the proposed project.

The Company did not include a generation alternative. It dismissed serving the Garrisonville load growth with additional generation as infeasible because of high capital costs, difficulty in obtaining environmental permits, and difficulty in finding a suitable site. The Company noted that all of its generation projects are located to the west and south of the Garrisonville load area.

Having considered the various alternatives, I find the demand for electricity in the Garrisonville area would best be served by a new 230 kV transmission line running from Aquia Harbour to Garrisonville and the construction of a new Garrisonville Switching Station. The Company's transmission alternative best addresses the need to provide additional distribution in the Garrisonville area, provide reliable electric service to its customers, and integrate the Company's 230 kV transmission system in the Northern Virginia region. The only real question to decide is whether the new transmission line should be constructed overhead or underground.

[55] *Id*. at 21.
[56] *Id*. at 30.

V. *DEQ Environmental Review and Recommendations.*

The DEQ-coordinated environmental review contains no issues that would preclude the construction of either an overhead or underground transmission line. The DEQ provided a list of the permits, laws, regulations, and approvals with which the Company must comply, including: water permits, subaqueous lands management permit; erosion and sediment control, and stormwater management permits; air quality permits or approvals; solid and hazardous waste management regulations; historic preservation laws and regulations; federal and state endangered species laws; and the federal Coastal Zone Management Act. DEQ made a number of recommendations that were in addition to any other requirement included in any federal, state or local law or regulation. These recommendations included:

(1) conduct field delineations of wetlands and streams;
(2) take precautions to avoid and minimize indirect impacts and temporary impacts to wetlands, and adhere to DEQ recommendations;
(3) conduct an environmental investigation that includes a search of waste-related databases on and around the property to identify any solid or hazardous waste sites or issues before work begins;
(4) reduce solid waste at the source, re-use it and recycle it to the maximum extent practicable;
(5) coordinate the project with the Department of Game and Inland Fisheries ("DGIF") with respect to possible impacts to freshwater mussels;
(6) implement measures addressing erosion and sediment control and instream work recommended by DGIF to protect terrestrial and aquatic resources as appropriate;
(7) to the extent practicable, trees that are not identified for removal should be protected from the adverse effects of construction activities;
(8) continue coordination with the Department of Historic Resources on the development of a Phase I survey to address impacts to archaeological and architectural resources;
(9) coordinate road and transportation impacts with Stafford County and the Virginia Department of Transportation Fredericksburg office;
(10) follow the principles and practices of pollution prevention to the maximum extent practicable;
(11) limit the use of pesticides and herbicides to the extent practicable; and
(12) work with Stafford County to address the County's concerns related to the residential growth that has occurred adjacent to the Company's right-of-way.[57]

To the extent that DEQ's recommendations are applicable to the Company's Garrisonville project, and are not otherwise covered by a permit, law, regulation, or approval, I find the recommendations are reasonable.

[57] Ex. 37, at 2-6.

VI. *Underground Alternatives*.

After facing organized and determined opposition to its proposed overhead 230 kV transmission line from citizens, business leaders, and local and state legislators, the Company amended its Application to include two underground alternatives for the Commission's consideration.

A. Alternatives presented by the Company.

The Company proposed underground Options 1 and 2. Option 1 consists of two 230 kV transmission circuits constructed of XLPE cable in two concrete ductbanks. This option offers the same reliability and operational characteristics as the Company's overhead alternative, and for those reasons, is the option preferred by the Company. The total cost of Option 1 is $82.30 million (2007 dollars). This consists of: $70.29 million to acquire the underground rights and construct the two circuits; $8.50 million to acquire additional land and construct the Garrisonville Switching Station; $3.41 million to acquire additional land and construct improvements to the Aquia Harbour Terminal Station; and $0.1 million for upgrades to the Possum Point and Fredericksburg Substations. The Company estimated that it would take 36 months to construct Option 1.

Option 2 consists of one 230 kV transmission circuit constructed of XLPE cable in one concrete ductbank. The total cost for Option 2 is $48.44 million (2007 dollars). This consists of: $37.30 million to acquire the underground rights and construct the one circuit; $7.28 million to acquire additional land and construct the Garrisonville Switching Station; $3.76 million to acquire additional land and construct improvements to the Aquia Harbour Terminal Station; and $0.1 million for upgrades to the Possum Point and Fredericksburg Substations. The Company opposes this option because it is inferior to its overhead option. It does not offer the same MVA capacity, reliability, or redundancy as the Company's overhead alternative. The Company estimated that it would take 32 months to construct Option 2.

B. Alternatives presented by Stafford County and Towering Concerns.

Stafford County and Towering Concerns witness Lanzalotta proposed underground Options 2.1 and 1.1. With Option 2.1, he favors using the Company's Option 1 circuit breaker scheme with the Option 2 cable layout. Mr. Lanzalotta's Option 2.1 calls for two circuits, each with three XLPE cables, to be installed in a single concrete ductbank. He estimated that this would increase the total cost of Option 2 by approximately $1 million, for a total cost of $49.44 million. With Option 1.1, Mr. Lanzalotta recommends two concrete ductbanks, each with one set of XLPE cables, to be installed. He estimated this would reduce the cost of Option 1 by $14 to $15 million, for a total cost of $67.3 million. Option 2.1 has the same shortcomings as Option 2, although with the addition of circuit breakers the Company could more easily isolate any faults occurring on the line. However, the Company raised safety concerns with potentially having to perform repair work on one line in a single ductbank, while the other line is energized. Option 1.1 addresses the Company's safety concerns, but lacks the MVA capacity of the Company's overhead alternative and does not integrate the Company's 230 kV transmission system. Option 1.1 allows for future build-out; however, one of the circuits serving Garrisonville would have to be taken out of service during construction.

I find underground Option 1 is the only underground option that has the same performance characteristics as the Company's overhead alternative, and offers the same reliability and redundancy as the Company's overhead alternative.

C. Issues Related to Underground Alternatives.

a. Cost.

The primary issue related to the underground alternatives is the enormous cost differential between the overhead alternative at $14.16 million and underground Option 1 at $82.30 million, a $68.14 million difference. Stafford County has expressed no interest in pursuing a special tax district pursuant to § 15.2-2404 of the Code of Virginia to pay the difference in cost to underground the transmission line. Stafford County believes the impact of the transmission line on the environment, the communities in Stafford County, and the county's tax base warrants placing the transmission line underground and apportioning the cost among all of Dominion's ratepayers. The County's argument has some merit. All of the negative impacts of an overhead transmission line are localized to approximately 1,000 feet on either side of the line, those with a line-of-sight view of the line. However, the positive benefits of the line extend far beyond the borders of Stafford County and include the Company's entire 230 kV transmission system. Those who will potentially receive a benefit should bear some of the cost to offset the negative impact of the line on Stafford County.

b. Benefits.

The primary benefit of an underground transmission line is the elimination of the visual impact of an overhead transmission line. The vast majority of residents of Stafford County understand the need for a transmission line to serve load growth in the Garrisonville area; however, they prefer that the line be placed underground. I believe the residents impacted by the line would rather have the additional temporary construction impacts associated with constructing an underground transmission line, than a permanent view of an overhead transmission line and 130-foot transmission towers. From a reliability perspective, underground Option 1 is at least as reliable as the Company's overhead alternative.

c. Garrisonville as a Pilot Project.

To address the cost and visual impact issues, the Company floated the idea of treating the Garrisonville project as a second XLPE pilot project. In this way, the cost of undergrounding the transmission line could be spread across the Company's entire rate base. The Company's proposal has merit. The Company's Ballston – Clarendon pilot project has some serious shortcomings, primarily associated with the length of the project. The project involves the construction of a 2,200-foot (733.3 yards or 0.41 of a mile) underground 230 kV transmission line using XLPE cable. There are several reasons that the Ballston – Clarendon pilot project will not provide an accurate assessment of the cost to build, operate, or maintain an XLPE 230 kV underground transmission line. First, a number of suppliers of XLPE cable did not bid on the project because of its short length. This would tend to overstate the cost of the XLPE cable. Second, the cost to construct the line would most likely be understated; given the line's short length, it would not have to cover

varying terrain conditions such as hills, stream crossings, or road crossings. Third, the line will at most have one splice, if any. The primary failure point of an underground XLPE cable is the splice. With one, or no, splices, the Company would gain little operational reliability or maintenance experience from the line. Finally, the line will not require the installation of any shunt reactors, which affect the day-to-day operation of the line. If the goal of the Clarendon – Ballston pilot project is to provide an average cost per mile for the installation of XLPE underground cable, operational reliability and maintenance experience, and operating experience with a typical XLPE underground transmission line, the project will not meet these goals. If the Company were to undertake a second XLPE pilot project, the Company believes the Garrisonville project would be suitable for such a pilot. If the costs were apportioned across the Company's entire rate base, underground Option 1 would add approximately $0.10 to every Dominion residential customer's monthly bill. On a percentage basis, bills would increase approximately 0.10%.[58]

VII. *Impact on Real Estate Values.*

To my knowledge, this is the first Commission case in which the issue of an overhead transmission line's impact on real estate values was fully developed on the record by the submission of expert witness testimony by parties on both sides of the issue and in which a county Commissioner of the Revenue appeared and testified on the line's impact on the county's residential real estate tax base. Mr. Mayausky used Stafford County specific data and replicated the diminution in value methodology used in the JLARC Study. His analysis indicated that Stafford County would experience a $17.5 million reduction in property values, which translates to a $123,000 per year loss in tax revenue to the county. After considering the county's historic growth rate and the 50-year economic life of an overhead transmission line, Mr. Mayausky calculated the county would lose $129 million in tax revenue over the life of an overhead transmission line. As the Commissioner of the Revenue for Stafford County, he wanted to know who would make up the loss in tax revenue. This lost tax revenue directly affects economic development in Stafford County. When compared to the potential loss of $129 million in tax revenue, the additional $68.14 million to underground the line appears to be justified. The Company sought to discredit the diminution in value methodology used in the JLARC Study and Mr. Clauson's paired sales analysis. However, the Company failed to establish that either methodology was unreasonable. In fact, the results of both valuation methodologies were supported by the extensive public witness testimony. If given a choice, most people would rather relocate than live next to a 230 kV transmission line. It is self-evident that the prevailing public sentiment impacts real estate values. The question is: to what extent? Company witness Parli recommended that the Commission retain its own expert/s to study an overhead transmission line's impact on real estate values, with the goal of producing a methodology by which its impact could be analyzed and a value established.

VIII. *Conclusions.*

I agree with Mr. Parli that the Commission should study the impact of an overhead transmission line on real estate values. Although the issue has been addressed in past Hearing Examiner Reports, the Commission has never specifically addressed the issue in a Final Order. The goal of such a study would be to produce a methodology by which any impact could be analyzed

[58] *See, supra* pp. 31-32.

and a value established so that a cost/benefit analysis could be performed. If the Commission approved the Garrisonville project as a pilot project, the Commission would have the opportunity to retain its own expert/s to study the impact without having to address the issue piecemeal in litigation. Accordingly, I find the Commission should issue the Company a certificate of public convenience and necessity to construct underground Option 1 as an XLPE pilot project.

In the alternative, if the Commission rejects the above finding, I find the Commission should issue the Company a certificate of public convenience and necessity to construct an overhead 230 kV transmission line on galvanized steel monopoles in the center of the right-of-way. These mitigation measures reasonably address the visual impact of the line, but not the line's effect on real estate values. The Commission would need to address the real estate valuation issue in its final order.

I find dulled steel monopoles and non-reflective conductors will do little to mitigate the visual impact of an overhead transmission line and these measures do not justify the additional expense. The galvanized steel monopoles and conductors will weather naturally over time.

I find there is no need to incur the additional cost of pulling the lead line by helicopter. Pulling the lead line by bulldozer would impact no more than a 20-foot strip up the middle of the right-of-way. As a condition of the Company's erosion and sediment control permit, it must grade and overseed any areas disturbed by construction. Additionally, the Company has indicated that it will blow wood chips from its clearing operations into the right-of-way.

The record is unclear whether shifting the transmission line to the center of the right-of-way would raise the same impacts to the Austin Ridge Park and the Autumn Ridge Subdivision as using the southern edge of the right-of-way. To the greatest extent possible, the Company should locate its monopoles to minimize the impact on the park, the subdivision, as well as the athletic fields at the various schools and any other recreational areas. I recommend the Commission direct the Company to work with Stafford County planners and the Staff to find appropriate locations for the monopoles.

The weak link in any right-of-way clearing program is the absence of a definitive plan and the Company's reliance on a subcontractor to perform the clearing. While the right-of-way in this case is not subject to the same public use as the W&OD Trail, Stafford County is still concerned that the entire 335-foot right-of-way could be clear cut. I find the Company should be required to develop and file with the Commission, a detailed right-of-way clearing plan that follows FERC guidelines. The plan should contain an inventory of the vegetation along the route, and to the greatest extent possible, retain the vegetative buffers along the northern and southern edges of the right-of way, and any vegetation in the 120-foot area occupied by the transmission line that does not pose a hazard to the line. Additionally, the plan should also address future maintenance of the right-of-way. To ensure the clearing plan was implemented as planned, I find the Commission should require the Company to have one of its foresters, or a contract forester or arborist, supervise the day-to-day operations of its clearing contractor.

If the Commission approves this project as a second underground XLPE pilot project, I find the Commission should advise the parties in its final order that its decision in no way establishes a precedent for future transmission lines in the subject right-of-way. The Company's plans for the future are fluid and could involve the construction of two additional 230 kV transmission lines, or one additional 500 kV transmission line and another 230 kV transmission line in the right-of-way. At present, the technology does not exist to underground a 500 kV transmission line and the line would have to be constructed on a lattice-type tower, rather than a monopole. Of course, any future application for a transmission line would have to satisfy the need requirement and would be decided on the facts that exist at the time.

Findings and Recommendations

Based on the evidence received in this case, and for the reasons set forth above, I find that:

(1) the Company met its burden of establishing the need to provide additional electricity to its Garrisonville load area, and the need to provide reliable electric service to its customers;

(2) the demand for electricity in the Garrisonville area would best be served by a new 230 kV transmission line running from Aquia Harbour to Garrisonville and the construction of a new Garrisonville Switching Station;

(3) to the extent that DEQ's recommendations are applicable to the Company's Garrisonville project, and are not otherwise covered by a permit, law, regulation, or approval, the DEQ recommendations are reasonable;

(4) underground Option 1 is the only underground option that has the same performance characteristics as the Company's overhead alternative, and offers the same reliability and redundancy as the Company's overhead alternative;

(5) the Commission should issue the Company a certificate of public convenience and necessity to construct underground Option 1 as an XLPE pilot project;

(6) in the alternative, if the Commission rejects the foregoing finding, the Commission should issue the Company a certificate of public convenience and necessity to construct an overhead 230 kV transmission line on galvanized steel monopoles in the center of the right-of-way;

(7) the Commission should retain it own expert/s and conduct a study of the impact of overhead transmission lines on real estate values and develop a methodology for use in Commission cases by which any impact could be analyzed and valued;

(8) dulled steel monopoles and non-reflective conductors will do little to mitigate the visual impact of an overhead transmission line and do not justify the additional expense;

(9) there is no need to incur the additional cost of pulling the lead line by helicopter;

(10) the Company should locate its monopoles to minimize the impact on the Austin Ridge Park, the Autumn Ridge Subdivision, as well as the athletic fields at the various schools and any other recreational areas;

(11) the Company should be required to develop and file with the Commission, a detailed right-of-way clearing plan that follows FERC guidelines and addresses future maintenance of the right-of-way;

(12) to ensure adherence to the right-of-way clearing plan, the Commission should require the Company to have one of its foresters, or a contract forester or arborist, supervise the day-to-day operations of its clearing contractor; and

(13) the Commission should advise the parties in its final order that its approval of this project as an underground pilot project in no way establishes a precedent for future transmission lines in the subject right-of-way.

Accordingly, ***I RECOMMEND*** the Commission enter an order that:

(1) ***ADOPTS*** the findings and recommendations in this Report;

(2) ***APPROVES*** the Company's Application;

(3) ***ISSUES*** the Company a certificate of public convenience and necessity to construct underground Option 1 as an XLPE pilot project; and

(4) ***PASSES*** the papers herein to the file for ended causes.

Comments

The parties are advised that any comments (Section 12.1-31 of the Code of Virginia and Commission Rule 5:16(e)) to this Report must be filed with the Clerk of the Commission in writing, in an original and fifteen (15) copies, within twenty-one (21) days from the date hereof. The mailing address to which any such filing must be sent is Document Control Center, P.O. Box 2118, Richmond, Virginia 23218. Any party filing such comments shall attach a certificate to the foot of such document certifying that copies have been mailed or delivered to all counsel of record and any such party not represented by counsel.

Respectfully submitted,

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Michael D. Thomas
Hearing Examiner

The Clerk of the Commission is requested to mail a copy of this Report to: Stephen H. Watts. II, Esquire, McGuireWoods LLP, One James Center, 901 East Cary Street, Richmond, VA 23219-4030; Vishwa B. Link, Esquire, Dominion Resources Services, Inc., P.O. Box 26532, Richmond, VA 23261; John W. Montgomery, Esquire, Montgomery & Simpson, LLP, 2116 Dabney Road, Suite A-1, Richmond, VA 23230; Holly H. Hazard, Esquire, 1101 International Parkway, Suite 109, Fredericksburg, VA 22406; Michael J. Quinan, Esquire, Christian & Barton, 909 East Main Street, Suite 1200, Richmond, VA 23219-3095; Elizabeth G. Lang, Assistant County Attorney, P.O. Box 339, Stafford, VA 22555-0339; and Brian R. Greene, Esquire, Bank of America Center, 1111 East Main Street, Suite 1720, Richmond, VA 23219.